Track measuring cars:
Today–and tomorrow

April 14, 1975

RAILWAY AGE

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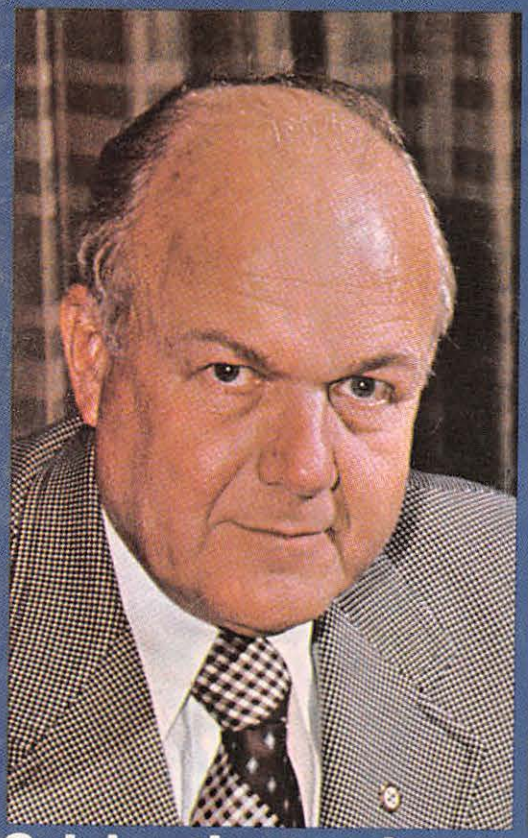
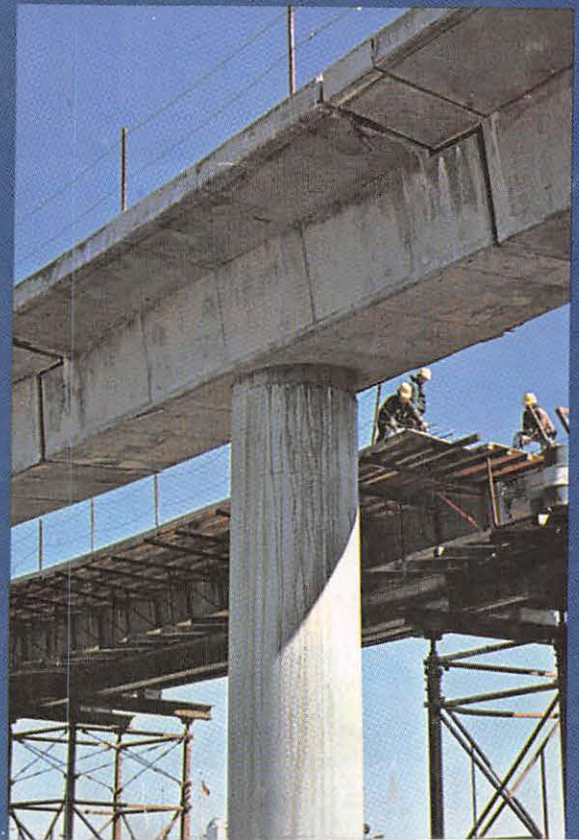


Solving the tough management/labor problems

Moving People:

Americanization of the Turboliner



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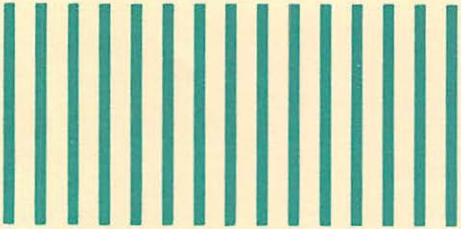

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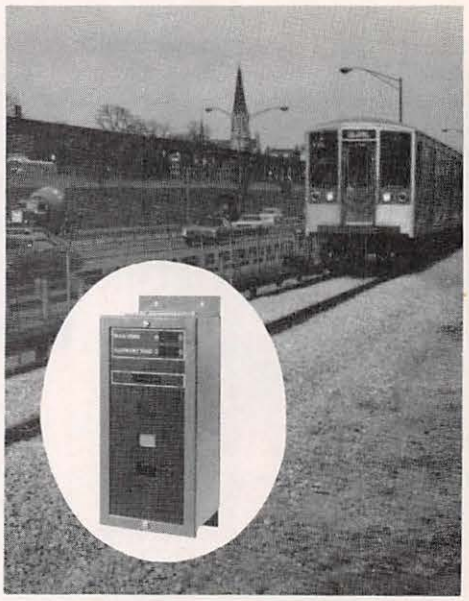
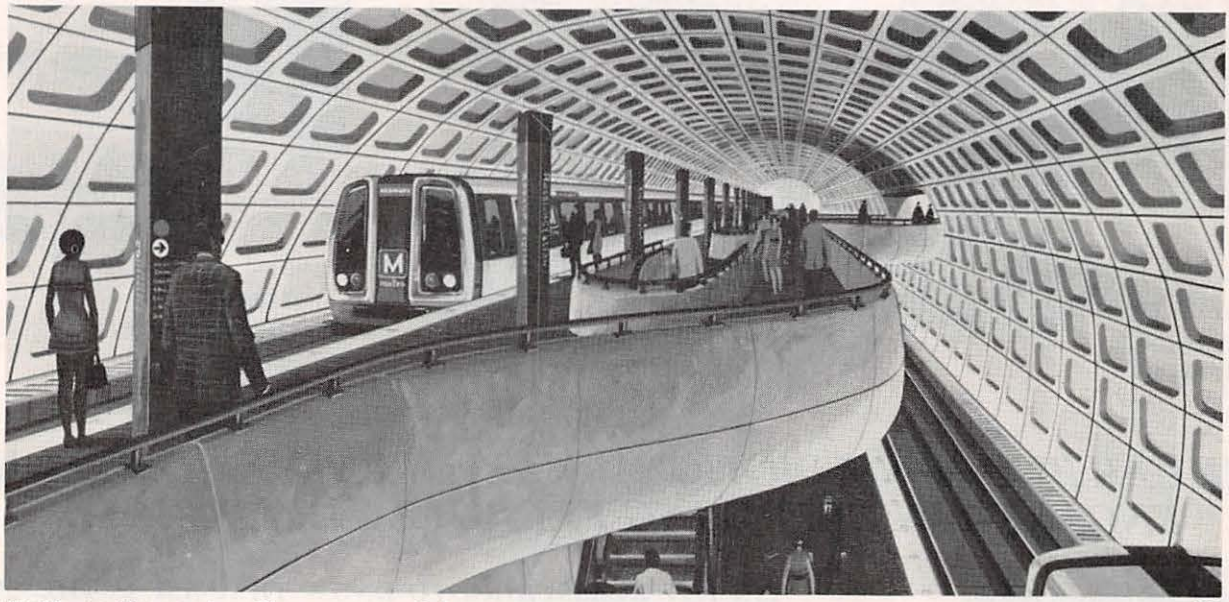


Chicago Transit cab signal system includes automatic speed control and high frequency track circuits.



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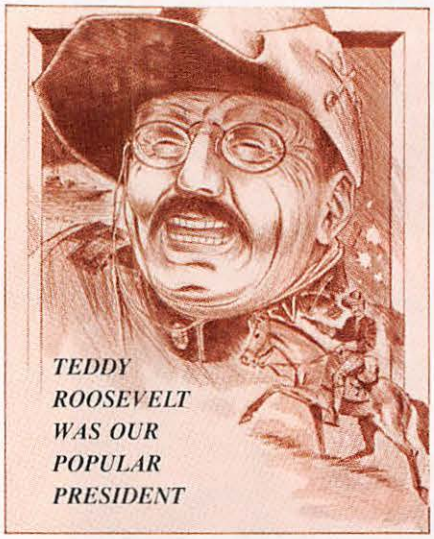

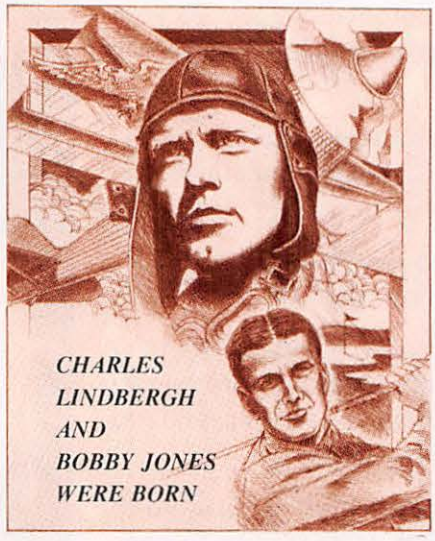

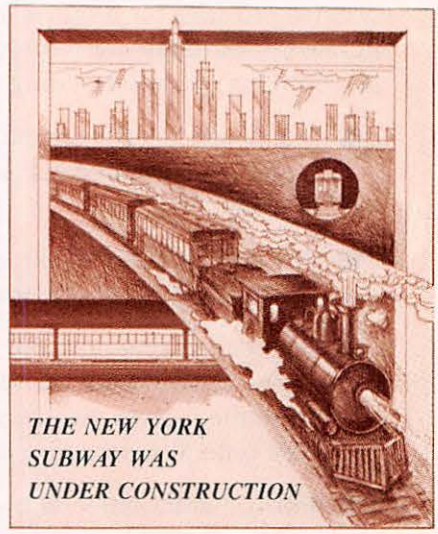

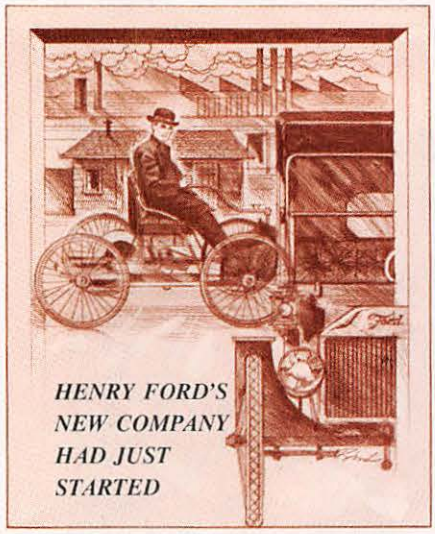

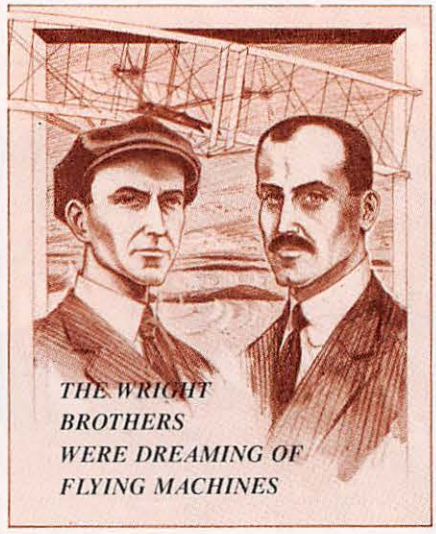

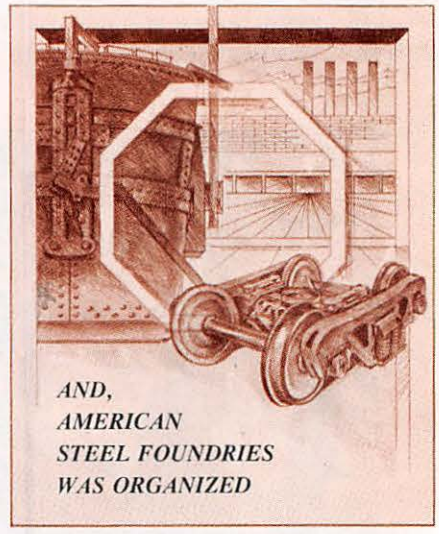

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Incorporating Railway Locomotives and Cars

April 14, 1975 • Vol. 176 No. 7

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Inside

LUTHER S. MILLER

WASHINGTON METRO PREVIEW

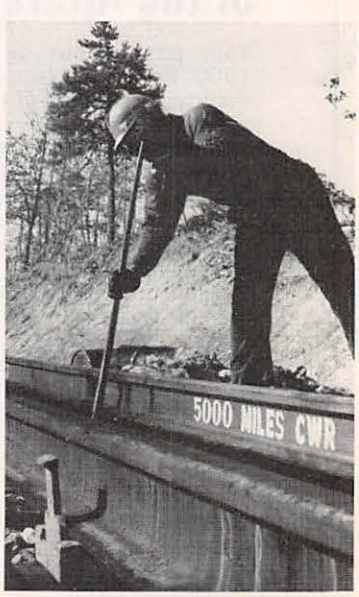
Railway Age Publisher Robert G. Lewis is a man who collects new railroad miles the way some people collect stamps. On the morning of April 2, 1975, Bob's "collection" included 122,549.3 miles of unduplicated rail and rail-transit travel, according to a diary that he began keeping in 1937. By that evening, the total had risen to 122,550.9 miles. What made the difference was a ride on a Washington Metro train between the elevated Rhode Island Ave. station and Metro's still-incomplete Union Station. What made this mile-and-a-half addition really different was the fact that this was, literally, new mileage: the April 2 run marked the first time that a Washington Metro train has operated with passengers. The occasion was the American Public Transit Association's 1975 Rail Transit Conference, which the Washington Metropolitan Area Transit Authority hosted. It will be another six months before the Metro will begin hauling paying customers, but arrangements were made by WMATA Chairman Joe Alexander and General Manager Jackson Graham for special pre-inaugural runs for conference attendees. How does the Washington Metro compare with others around the world? Publisher Lewis's verdict:

"The WMATA ride certainly must rank with the best anywhere in the world. If you can judge by a round trip of 3.2 miles, WMATA ties with BART for excellence in ride quality and smooth starts and stops. The car itself may be slightly less comfortable, because some of the spaciousness of BART has been sacrificed to provide more seating for WMATA passengers. But for those who want to see the railroad, WMATA provides a front-end view which BART all but denies its riders. Until WMATA is in regular operations, comparisons will be difficult, at best. But based on the April 2 experience, it is this observer's opinion that Washington will match all the great Metros around the world—Montreal, Mexico City, the Paris RER Lines, Stockholm and Moscow."

A few days before the pre-inaugural run, Railway Age Associate Editor Kenneth G. Ellsworth spent a good bit of time in Washington talking with the men who have designed and built the system. His report on what has happened so far—and what Washingtonians can expect in the next six years—starts on p. 30.

CWR 5,000-MILE CLUB GROWS

About eight months ago, the Santa Fe announced with considerable pride that it had become the first railway in the U.S. to spike its 5,000th-mile of continuous welded rail into place. With considerable pleasure, we recorded this news (RA, Sept. 30, 1974, p. 48). On Feb. 5 of this year the Chessie System laid CWR mile No. 5,000 near Charleston, W. Va., and a few days later put out a release claiming the No. 2 membership in the club (RA, Feb. 24, p. 34). We are now informed that the Southern beat the Chessie to CWR Milepost 5,000 by about one month. On Jan. 6, says Assistant Vice President W.F. Geeslin, Southern completed 5,000 miles of CWR at a spot near Bremen, Ga. (see photo). Any other contenders?



From the whistles of the past . . .

Photos courtesy of *The American Steam Locomotive* (Midwest Rail Publications) and *Trains Magazine.*

come the signals of the future

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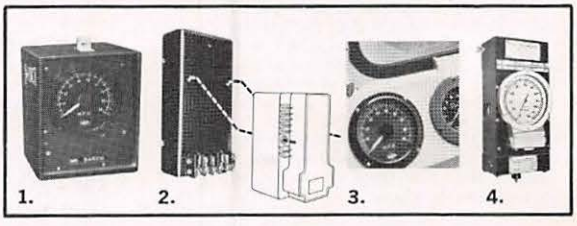
Barco Electronics



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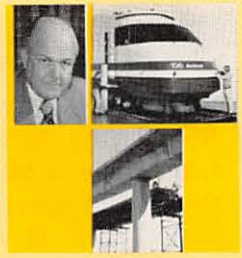
FEATURES



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Short and Significant

CARRIERS WIN RATE HIKE—WITH EXCEPTIONS

Reversing an earlier decision, the Interstate Commerce Commission on March 25 agreed to let railroads increase their freight rates up to 7%. The increase is to become effective April 12. In its order, the ICC imposed an unusually large number of "exceptions." It said the increase could not apply to import-export traffic, piggyback or container movements, motor vehicles and equipment, lumber and lumber products, goods being moved for recycling (except iron and steel scrap), sugar beets, and asphalt building and roofing materials. Last week, the Chessie was spearheading an effort to have export coal removed from the list of exceptions. A petition to the Commission noted that in 1974 more than 43 million tons of coal were exported through Baltimore, Philadelphia and Hampton Roads—and an increase of 7% on this quantity would approximate $20 million "or more than a quarter of the $75 million that Eastern District carriers stood to gain by the uniform increase of 7% sought on all coal traffic—domestic and foreign."

EMPLOYMENT DROPS 2.6% IN MONTH

In mid-February, Class I railroad employment stood at 502,952—a drop of 2.62% from January, and a decline of 3.64% from February 1974. Using the same month in 1967 as a base of 100, the February employment index was 82.4; the January index was 84. In November 1974, the index reached its recent peak of 91.

CAR ORDERS DROP; BACKLOG STILL HIGH

Orders were placed for 2,031 new freight cars in February—down from 3,502 in January, and from 6,731 in February 1974. All of the cars ordered in February are to be built by commercial builders. A total of 5,699 new cars were installed in February, compared with 5,910 in January and 4,003 in February 1974. The backlog of new cars on order and undelivered stood at 83,028 on March 1, compared with 86,943 on Feb. 1 and 75,228 on March 1, 1974.

RATE OF RETURN UP IN '74

Despite a sharp fourth-quarter drop in operating income, Class I railroads last year were able to increase their rate of return on net investment to 3.45% from the previous year's 3.06%. This was accomplished on operating revenues of $16.9 billion (vs $14.8 billion in 1973), of which $981 million was brought down to net railway operating income (vs $855 million in 1973). Ordinary net income amounted to $747 million, a gain of 35.3% over the $552 million reported in 1973. Of the 64 reporting railroads, 16 operated in the red—10 in the East and six in the West. In announcing the full-year results on March 27, the AAR's vice president-economics and finance, William F. Betts, noted that the conditions which caused earnings to decline in the last quarter of '74 have steadily worsened since then. "It appears that additional deterioration in rail traffic in 1975 due to the nation-wide recession and further cost increases will combine to produce the worst financial results for any first quarter in recent memory," said Betts.

FINANCIAL WORLD CITES BARNETT, VAN GORKOM

Union Pacific Chairman Frank E. Barnett has been picked by Financial World magazine as one of "American Industry's 10 Best Chief Executive Officers." J.W. Van Gorkom, president of Trans Union Corp., also made the top-ten list.

PENN CENTRAL LOSSES DEEPEN

Declining revenues and rising costs are contributing to a steadily worsening financial picture for the Penn Central. PC's fully-accrued loss for this year's first two months rose to $86.8 million, $28.3 million worse than the loss for the comparable 1974 period. Despite the cumulative effects of rate increases totalling 17.5%, freight revenues for January-February were down 0.4% from a year ago; railway operating expenses were up 10.9%.

$93-MILLION COAL PROJECT APPROVED

Directors of the Standard Oil Co. (Ohio), parent firm of the Old Ben Coal Co., have approved expenditures totaling $93 million for development of a new underground mine complex near West Frankfort, Ill. Initial operations will begin in April 1977, with estimated production of about 600,000 tons for the remainder of that year. Production will rise to 1.7 million tons in 1978, increasing annually to full production of more than 4 million tons in 1981. Illinois Central Gulf unit trains will serve the new twin-mine complex.

MACHINE TOOL ORDERS DECLINE

Total net new orders for the machine tool industry in February were $62,650,000, according to the National Machine Tool Builders' Association. That was 25% below January and 72% below February 1974. Machine tool shipments in February, 23% above January levels and 62% higher than in February 1974, amounted to $217,350,000. At the end of February, the industry's backlog was $2,298,700,000.

PLANTS STILL SPROUT ALONG THE PC

Penn Central's uncertain future doesn't seem to have discouraged plant-site seekers. In 1974, PC reports, 339 new or expanded industries were located on PC lines. When they are in full operation, they will generate an estimated 139,000 new carloads and trailerloads of freight annually.

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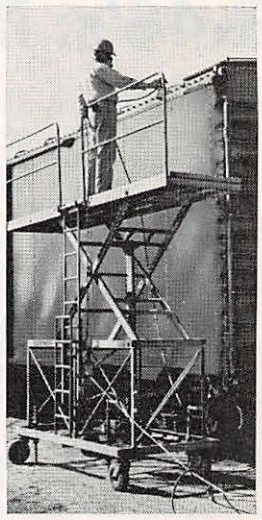

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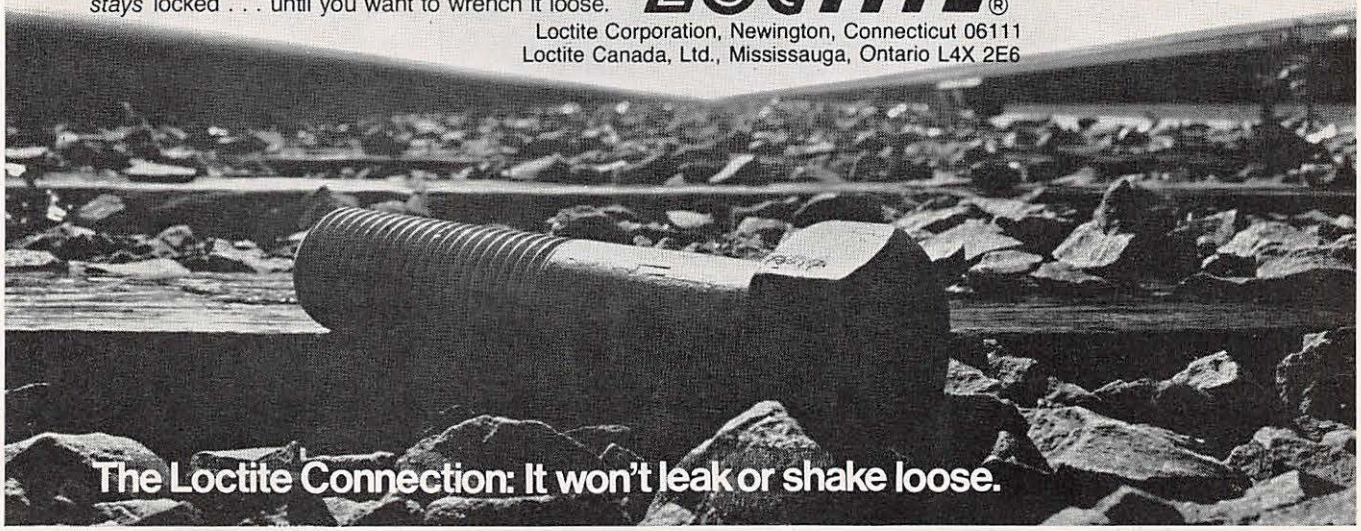


Circle 8 on Reader Service Card

R-46's: Ready for the "torture test"

After travails that only a builder of rapid-transit cars can fully appreciate, Pullman-Standard's R-46 cars are ready for action—ready for what may be the most severe test/performance program yet designed in this country for anything short of a jet airliner or a space capsule. The R-46 is the car destined for service on the New York City Transit Authority's IND and BMT lines. P-S has the contract to build plus-or-minus 750 of them at a cost now pegged at $214 million; and, with four cars delivered late in March and another batch then being prepared for shipment, an eight-car test train will soon be going through that torture test, which requires 30 days of no-failure operation.

The contract is the largest ever awarded in this country for rail passenger cars, and the cars themselves have a number of design advances though they are similar in outward appearance to the R-44 cars turned out by St. Louis Car for NYCTA a few years ago. With all the testing done on them by the carbuilder and with all the service-testing yet to come, P-S believes that the R-46 "should be the most reliable new equipment to enter service in recent years."

Already, however, the R-46 makes quite a story, because between contract-award time and delivery of the first test cars, P-S went through what might be regarded as a carbuilder's version of hell—principally because of a combination of economic factors: tremendous start-up costs with no initial provision for front-money; and galloping inflation with its obvious and inevitable impact on a price structure that had no built-in escalator to help the builder cope with cost increases. At this point, however, P-S parent Pullman, Inc.—after much corporate soul-searching—is still taking a longer view of the passenger-car market and its potential, and is not joining the ranks of builders who have left the market (or been driven out of it).

As for the R-46 itself, these are some of its design features:

—The suspension makes use of air springs and rubber-spring elements with a valve system that automatically controls operating height and pressure on the air spring to improve ride quality and keep the car floor even at station platforms under different passenger loads (which, under rush-hour conditions, may run up to 300 riders).

PULLMAN CARS are barged across New York harbor from Hoboken to Brooklyn

—Lightweight trucks, developed by Rockwell, feature an articulated frame with spherical ball joints to insure equalization of wheel load under various running conditions. The design has been fatigue- and stress-tested, and a prototype was service-tested on an earlier-model car over much of NYCTA's track and over the Long Island at speeds of up to 80 mph.

—For the first time in any transit car, as P-S puts it, there was a requirement "that the car end structure meet AAR standards for passenger cars....Carbody structure has received extensive strength tests for vertical loads, simulating passenger weight; for ability to withstand high squeeze forces on car ends and couplers;" and for ability to withstand torsion or twisting loads. An overload test "successfully demonstrated that the carbody structure is capable of withstanding vertical loads three times greater than the maximum passenger load."

—Several innovations to improve passenger comfort. First, there is a more powerful air-conditioning system using two 10-ton-capacity refrigeration units, each with its own power and control systems. All safety glass in the car is sound-insulating, another first. Interior noise-level specifications were strict, but with the sound-insulating glass, low-noise air-conditioning, insulation in the body structure, and air-ride trucks, the cars meet them.

—For operating flexibility, the R-46 is equipped with a hostler station opposite the cab end of the car, for use if needed in switching or in emergencies. In addition, the new cars come equipped with an on-board coupler adapter, so that the R-46 will be able to couple with and move certain types of older cars in the event they are disabled on line.

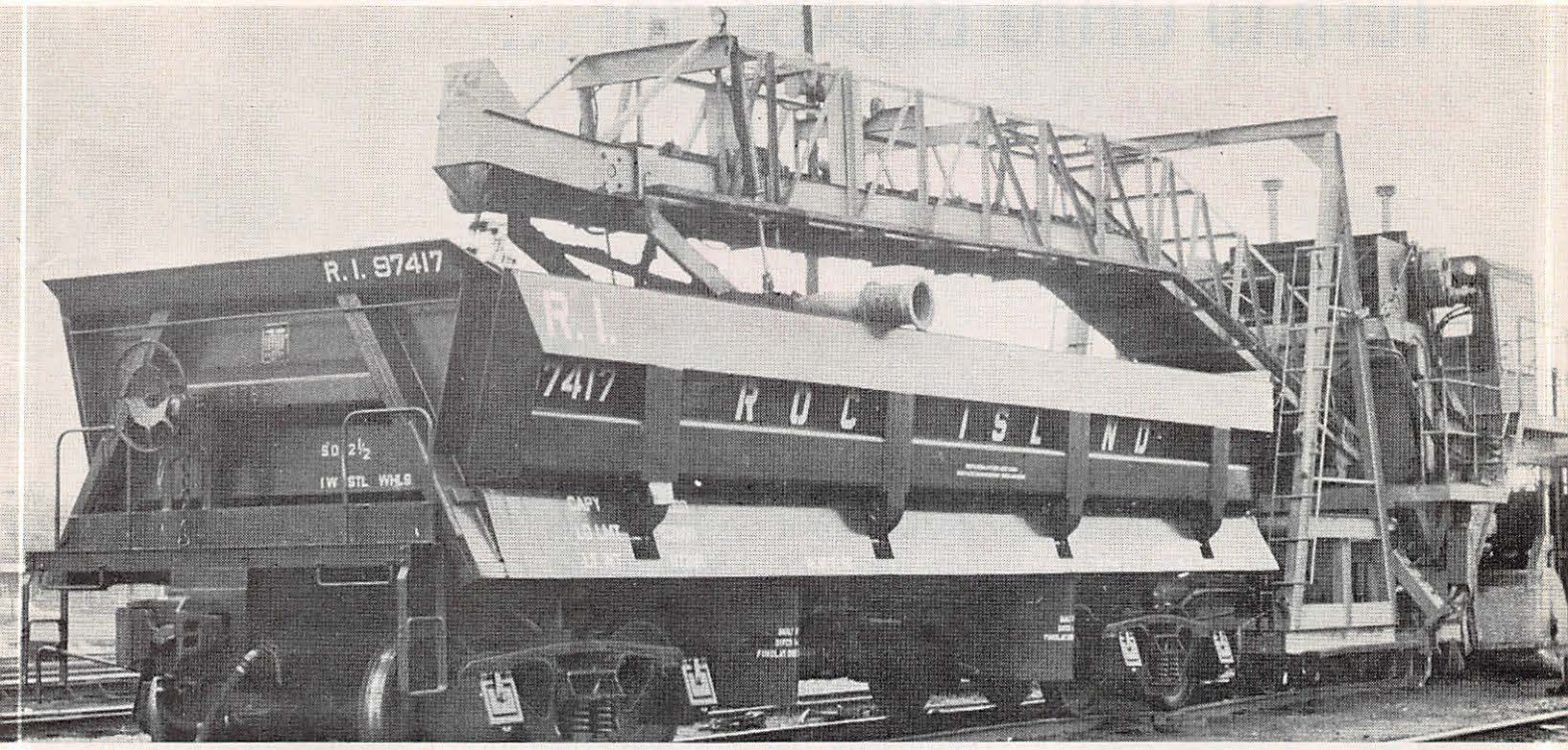
—For better tracking and third-rail contact at high speeds, P-S made use of a new-design, lighter-weight current collector. Under test at speeds up to 80 mph, high-speed cameras caught the action and verified the performance improvement.

—Also new is the system of door operators and side-door hangers, designed to minimize the incidence of train delay due to door malfunction.

—Like the earlier R-44s, the P-S cars can be controlled manually, semi-automatically or in an automatic-train-operation mode on lines equipped for ATO. In automatic, the engineer merely presses a "start" button and the system takes over, getting the train to speed, braking and positioning it at station platforms. Manual override, cab signals, and an overspeed protection system with braking assurance and programmed station-stopping equipment are provided for automatic operation.

P-S shipped the first cars from Chicago on flat cars via Erie Lackawanna to Hoboken, N.J., where they were transloaded and moved to Brooklyn by car floats. Now, after the complete test train is assembled, and preliminary tests have been completed, it will be up to the R-46 to show what it can do. New Yorkers should like it.

SPEED YARD CLEANING



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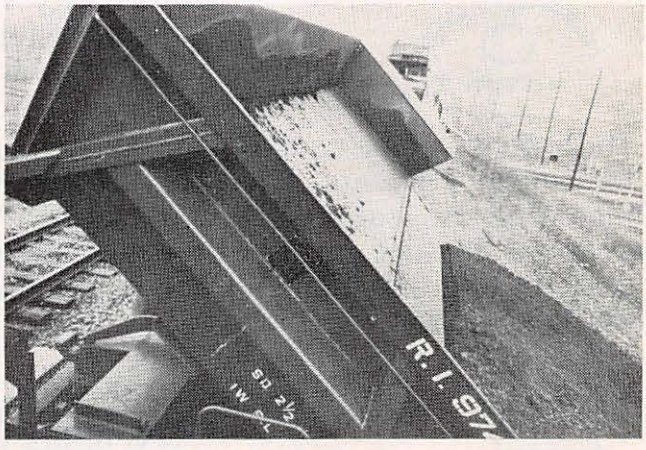

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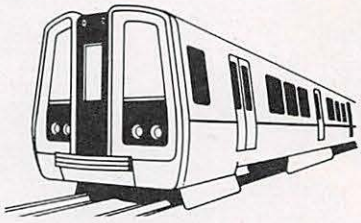

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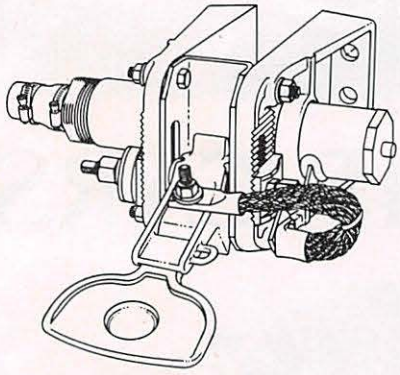
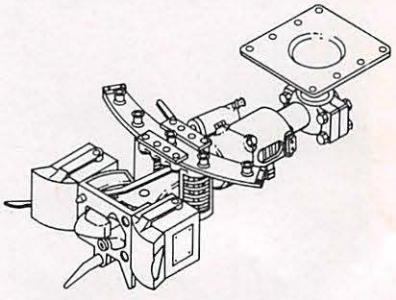
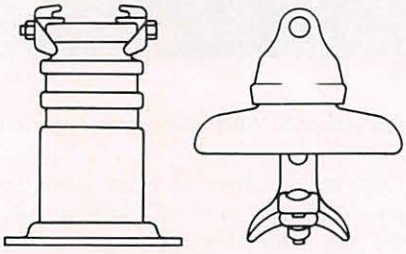


For example, the Dynaglide current collector features light weight (only 35 pounds per unit compared to as much as 200 pounds for the old-style collector). The collector's torsion spring loading maintains high contact pressure on the rail even at high speeds of as much as 80 miles per hour. Developed for the BART system, Dynaglide has been adopted by the New York City Transit Authority and PATH (Port Authority Trans-Hudson) and is used on the new cars being delivered to WMATA (Washington Metropolitan Area Transit Authority).



The O-B hook-type coupler has been a mass-transit favorite for almost 70 years. Many innovations have been added including the patented energy release mechanism. O-B couplers feature push-button uncoupling, self-centering devices, and automatic air line interconnection of electric service between cars.



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Chessie to spend $525 million

Obviously, Chessie System is bullish on American railroading. If you're not bullish, you don't commit $525 million for new equipment, and Chessie has done just that for 1975-76. What the half-billion-plus will buy will be 16,000 100-ton open-top hopper cars (which account for $409 million), 3,200 merchandise freight cars, 100 3,000-hp locomotives and 97 cabooses. In addition, Chessie this year alone plans to install 420 miles of new welded rail and insert about 1,250,000 new crossties (up by one-third from the tie-renewal total for last year). All of this spending, says President John W. Hanifin, has one goal: "That is to enable Chessie's people to move efficiently and safely our heavy volumes of traffic. [These improvements] represent a commitment to high maintenance levels even during a time of national business slowdown." Does this kind of spending pay off? Maybe it does: A few days after Chessie announced its new plans, updating and building on one made last year (RA, July 8, 1974, p. 11), it was able to announce higher first-quarter earnings for '75, earnings on a rail-operating revenue increase of $20.5 million.

Chessie itself is building, 10,000 of the open tops; Pullman-Standard and ACF Industries will each build 3,000; half of all these cars will be in service by the end of the year, with the rest coming in '76. As for the merchandise cars, Hanifin says they are "a demonstration of Chessie's dedication to traffic diversification. Today, coal is the growth area. But, merchandise freight generates almost 60% of our gross revenues, and in the past 10 years our system has spent twice as much on new merchandise freight cars as on new coal hoppers." Included in the merchandise-car orders are 1,600 gondolas, 1,100 covered hopper cars, 300 hopper cars for construction materials and 75 box cars for coil-steel traffic.

Will Chessie have a problem getting the money for this kind of program? Hanifin doesn't think so: "We see no problem in raising the necessary capital, given the levels of business that are developing. Our record cash and working capital, improved debt-to-equity ratio, earnings growth and past financing ingenuity support that assurance."

As for the future, he puts it this way: "Our planning must not only provide equipment replacements but also must add capacity to handle new business. . .We will need to spend even more in succeeding years on equipment and supporting facilities. By 1980, our total capital improvements for the six-year period could approach $1 billion."

Supporting facilities would include yards and additional pier facilities at Tidewater.

Watching Washington

R. M. M. McCONNELL

ONE HAND GIVETH. . .

References to Congress in this column over the past two years have largely focused on Congressional efforts to help the nation's railroads. While there have been some words of criticism that Congress has not been moving far enough or fast enough, there has been little attention turned to what Congress has been doing to hurt the nation's rail system.

This is ironic, because while Congress on the one hand has been trying to develop ways to compensate railroads for the inequities they have suffered over the years via government subsidization of the rails' competitors, Congress has, on the other hand, been perpetuating these same inequities. This not only doesn't make sense; it also puts the taxpayer in the position of subsidizing railroads' competitors to begin with, and then bailing out the railroads when the subsidized competition has eroded railroad economic stability.

A CASE IN POINT: LOCK 26

Let's look at one example: the Army Corps of Engineers' Lock and Dam 26 project on the Mississippi. The Corps has been working to launch a rehabilitation project for Lock 26, using an obscure authority that allows them to routinely spend money on repairs without seeking Congressional authorization. But to everybody involved, the Lock 26 effort is just the beginning. After all, what sense is there in widening and deepening the channel at 26 if it goes back to its old narrow, shallow ways at 25? Obviously, there has to be expansion all the way up the river to Minneapolis-St. Paul.

What does this mean? It means a lot of things to a lot of people. To barge lines, it means more freight and consequently more revenues. To waterside shippers, it means lower rates. To environmentalists, the operation—the largest construction project in the history of the midwest—means ecological disaster. And to the railroads? Well, it doesn't mean anything good. According to a statement of the Council for a Sound Waterways Policy, the adverse impact on railroads of Corps' efforts to increase the traffic capacity of the lock and dam system from 50 million to 190 million tons per year include:

—Diversion of approximately $400 million a year in revenues from the railroads.

—Loss of as many as 15,000 railroad jobs.

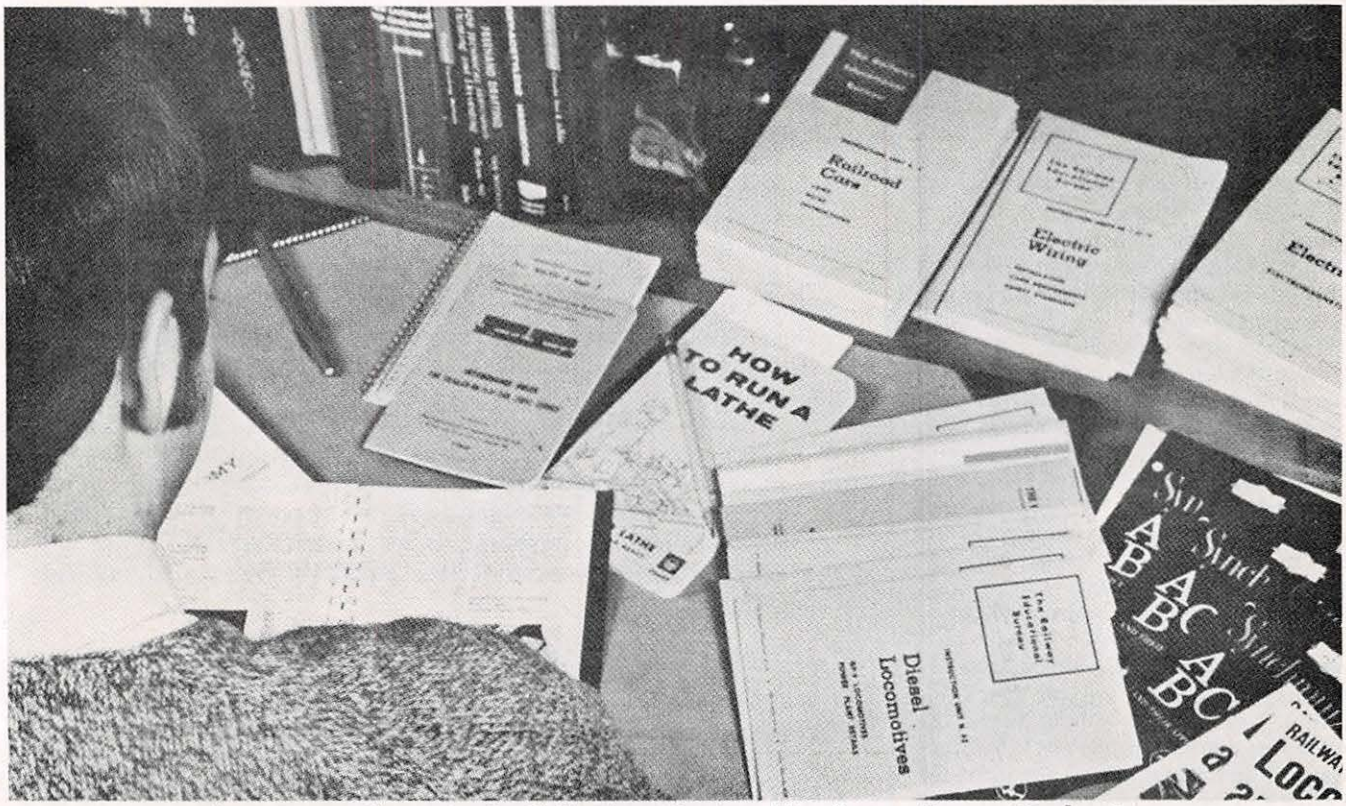
—And general weakening of the railroad structure on a nationwide basis.

In an injunction barring construction of the project, a Federal judge ruled that the Corps of Engineers had violated the law in several respects. One of these was the Corps' failure to secure Congressional authorization for the project in the first place. So to meet the court's objections, the Army has gone to Congress for legislation. It has succeeded in getting some introduced, largely because the widened waterways would be a boon to shipping traffic in several midwestern cities, a boon that would be underwritten at least once, if not several times, by the nation's taxpayers.

THE ROBBING PETER PRINCIPLE

The point of all of this is painfully clear: Congress, for local political reasons, is robbing Peter to pay Paul. That's nothing new. Then they're indemnifying Peter for his loss. That's nothing new either. What's new is that Peter is running out of money, and transportation policy—like other national policies—is turning into a giant shell game.

Learning Should Never Stop



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Lines on Labor

GUS WELTY

BRAC: WHAT'S WITH IT?

If you take a fast, not-so-penetrating look at the rail labor scene today—particularly as it involves the largest of the rail unions—you come, almost inevitably, to the conclusion that the Brotherhood of Railway and Airline Clerks has for one reason or several decided to become the loner in the labor movement. Fact: BRAC is the most militant holdout in the current round of contract negotiations and has a strike ballot out, results of which may be announced April 15. Fact: BRAC, alone among the rail unions, is not represented in a reunified Railway Labor Executives' Association. Fact: In a letter circulated some weeks ago, BRAC seemed to be taking a swipe both at railroad negotiators and at union negotiators who have reached a contract settlement. Fact: In that same letter, BRAC appeared to go out of its way to call attention to its bigness and it seemed piqued that the carriers dared to make a pact with smaller organizations.

BRAC'S POSITION: "WE DON'T WANT STRIFE." BUT. . .

BRAC, of course, has some responses. The proposed pattern agreement, for example, does not include certain items which BRAC members, polled by the union, said were important to them; the main hangup, among about a half-dozen, may be insistence on a job-security plan some see as the next thing to cradle-to-grave security. Then there's the matter of BRAC's staying on the outside of RLEA, and on that point the union merely says the decision was not to affiliate now but the union's position may be re-evaluated in the future. As for the swipes at management and union bargainers, well, that may just be the rhetoric-of-bargaining-revisited; BRAC's people are far too aware to casually write off the betterment in relationships that has taken place over the past few years and, as a matter of fact, one union spokesman observes, somewhat wistfully, that "We want a contract. We don't want strife in the industry. It was so great the last time around when we were able to get an agreement ahead of schedule. It was refreshing, delightful, all those good things." But then, back to another fact: If no settlement is reached in the meantime, BRAC will be free to go out April 18.

THAT BRAC ELECTION: HOW DOES IT FIGURE IN THINGS?

To look ahead a little farther, a couple of other facts: BRAC has a convention coming up, beginning May 5 in Washington. The only announced candidate for president is the incumbent, C.L. Dennis. But BRAC has a resolution on the books which would rule out a candidacy by anyone over 65 years of age. And Les Dennis was born in 1908. Which makes him—well, you figure it out. And does this add up to irresistible force meeting immovable object? Probably not. As one union source puts it, "The situation would seem to call for another resolution or at least an amendment, wouldn't it?" By a coincidence of timing, this column is being written on April 1 which is also election day in Chicago, the day when Mayor Richard J. Daley will win a smashing victory in his bid for a sixth term and everybody knows it even though the votes haven't been counted yet—and there is a strong temptation to regard Les Dennis' re-election as as much of a wired thing as Daley's. Probably, that temptation should be resisted, for two reasons: First, *nothing* is as sure as a Daley victory at the polls; and second, in a labor union *anything* can happen, and sometimes it's the unexpected. But, Dennis still looks like money in the bank. And what does a convention have to do with a union's posture? Maybe nothing, maybe something. BRAC, as always, is interesting to watch.

RI: It just keeps rolling along

Among all other options Rock Island is considering, maybe it should consider changing its logo and replacing the odd-shaped shield with Chessie System's cat. Cats, legend has it, have nine lives—and RI in recent weeks has seemed to be running through "lives" at a fearsome rate, moving from one date to another for a "shutdown" but always seeming to come up with a way to keep going. At the same time, to their credit, RI people aren't ready to become mourners. One group has started a movement to raise money, or gather pledges, presumably to help out as collateral to aid in getting the government loan which thus far has been denied the road. And the trustee in bankruptcy, William M. Gibbons, was speaking positively: "Our immediate concern is to keep the Rock Island competitive and boost revenues while reorganization is under way....It is imperative that shippers know that the railroad is in business to serve them. This is the only way the reorganization can get a fair test." Gibbons is not a railroad man; he is, in fact, a former law partner of the Federal judge overseeing RI's bankruptcy. From all present indications, RI will continue doing business with its present management, though the trustee may at some point go for outside counsel or advice.

Gibbons, a lawyer familiar with bankruptcy proceedings, has to be confirmed by the ICC, but as of early April that was expected to be a formality. In the meantime, RI, which had first talked of a March 31 embargo, shoved the date back into April and the court later set May 15 as the earliest date when an embargo could be instituted in order "to preserve cash flow and attract traffic on a continuing basis." And in another move, RI decided against imposing traffic surcharges which ICC had said it could file.

Obviously, RI was pulling out most if not all of the stops in order to stay in operation and not be what President John W. Ingram referred to as "a picked-over carcass." And the employee/ shipper (mostly employee) pledge proposal, quixotic though it might turn out to be, was pretty good evidence that RI's rank and file people also want to fight for the railroad they work for. Because of its position before the court, RI itself could take no real position on the plan—but the employee-led movement (which apparently started with a couple of clerks in Des Moines), appeared to be picking up backing on the system.

In retrospect, Penn Central's bankruptcy was relatively neat: PC just went under. Rock Island is something different—and more lives of the cat may be used up before it's finally decided whether RI can survive, and how.

C.J. Chamberlain of BRS and RLEA:

Solving the tough labor/management

In a relatively brief time—less than 10 years—as president of the Brotherhood of Railroad Signalmen, Charles J. Chamberlain has seen war and peace and tremendous change in rail management/labor relations. A few years ago, he led BRS in a brief walkout over alleged wage inequities. This year, he was one of the leaders in working out an amicable settlement of complex issues being negotiated at perhaps the worst of times—in an inflationary/recessionary economy. Change? He's seen it happening in the management/union relationship and within rail labor itself, with the Railway Labor Executives' Association—of which he is chairman—once again becoming an organization with representation from virtually all of rail labor. In conversation with Railway Age Senior Editor Gus Welty, Chamberlain talks of these things—and a lot more.

Q. People keep wanting to believe that it's a new ball-game today in rail management/labor relations. Is it, really?
A. I've been involved as a local lodge and general committee officer since 1938 and I've been actively involved in grand lodge work since 1957. It's my view—and, I think, railroad labor's view—that the atmosphere with respect to collective bargaining is much better today. Certainly it's better than it has been at any time since I've been active in union affairs.

Q. Why?
A. We've said for a long time that if there's to be true collective bargaining, there has to be dialog. All of us on both sides have known, in past negotiations, that eventually there would be a settlement—but so often it was an imposed settlement, and we couldn't see much sense in just blindly going on down that road. This time we had dialog, we got a settlement—without anybody intervening. It was negotiated across the table, with meaningful participation on both sides. And I have to take my hat off to Bill Dempsey [chairman of the National Railway Labor Conference] and to the people working with him, but primarily to Bill because he's the top negotiator. He's fair, and he's a man of integrity. He's shrewd, sure, but that's his job just as it's our job. Keeping in mind all of the problems we had to face in connection with the Railroad Retirement issues in 1973 and keeping in mind the economic situation in '74 and '75, I think we did a tremendous job in the most-recent negotiations. I'm proud of it. We proved that collective bargaining can work.

Q. In '73, though, agreement was pretty much across-the-board. This time, not all unions have actually settled, there was that shopcraft strike, there are mediation cases, and now a strike vote by one union.
A. Keep in mind that the gut issue then was Railroad Retirement. We had a gun at our heads, because Congress had told us to do something about restructuring the system or they would do it for us. I think that prompted everybody to agree to what we were able to work out. Looking back, I suppose it wasn't the best judgment to settle for only a 4% wage increase in 1974. But nobody could know what kind of inflation we were going to have. We have rectified that in the new agreement, with the cost-of-living escalator and the front-loaded wage package which picks up in part the losses our people sustained last year.

Q. But what about the holdouts now?
A. We had a meeting of most rail unions late last spring, for the primary purpose of trying to coordinate all of our different ideas into notices that made some sense. This was all informal, and nobody was going to be bound by what was decided. But we were able to come up with uniformity on wages and other common items. Still, with one exception, we all had lists of special items that were peculiar to one or a few unions. I think it's generally recognized that if one or a few unions can get a fair settlement on the big issues such as wages and health and welfare, that settlement tends to be a pattern. But there's no doubt that we have a stumbling block in those issues which are peculiar to a particular organization. That seems to be the hangup now.

Q. How did negotiations on the broad issues actually go?
A. In the mass negotiations with all of us, the carriers came in with what I termed a responsible offer. It was a three-year proposal, with increases of 8%, 3% and 3%. Never before had that kind of money been placed on the table initially. It was certainly a signal to me and, I think, to others that the carriers were making a serious attempt to negotiate in good faith and get an agreement across the table through collective bargaining. Right away, we said that if wages were right on the front end, then we could resolve anything on the back end with respect to special items. We've found, though, with respect to the so-called "laundry list," that most of the items don't affect our membership nationally as wages, health-and-welfare or a cost-of-living clause do. We said that if there were an avenue available to us to take care of these more-or-less local issues on local properties, we would do this. And that's the type of agreement we worked out, with binding arbitration to resolve matters if we can't work them out through negotiation.

Q. In your ratification process, did you get much static because wage increases in the second and third years were relatively smaller, 3% and 4%?
A. A lot of questions were raised, some of them on that point. Our answer was that with the 10% and 5% 1975 wage increases we came out in pretty good shape in the first year. Then, with the cost-of-living escalator and a roll-in provision, we have protected our people, we have protected the real wage progress they make. We've also eliminated a possible bargaining obstacle the next time around, because now we have a c-o-l escalator formula that in the last application in 1977 produces a one-cent-an-hour increase for each .3-of-a-point rise in the c-o-l. I expect it to remain in future contracts.

Q. With so many unions still unsigned, do you expect a real confrontation?
A. That, my friend, is a loaded question. I would say this: Nobody, no other union chief, has come to me and said he was dissatisfied with the basic terms of the agreement. If there is dissatisfaction, it has to do with those particular issues affecting individual unions.

Q. BRS was able to work something out on this. Why weren't others?
A. The issues themselves were different, and sometimes there are other problems within a union that demand different approaches. I understand there's dialog between the carriers and a number of organizations, and I hope they can work things out. We just happened to do it sooner.

Q. Was this partly a matter of negotiating strategy?

"I have no pessimism about the future, because we have proved that we can get things done. . ."

problems

A. Sure. When Bill Dempsey came in with a meaningful proposal, which was later raised a bit, some of us caught the signal. Some others felt they had to know first what was available on the front end before they would move on the other-than-common issues. Well, the situation had almost come to a stage of impasse because management refused to put something more on the table on the common issues while they were still facing a list of unknowns with respect to non-common issues. Finally, Dempsey said the carriers were prepared to move but with those organizations that had indicated that they were also prepared to move. That turned out to be the Signalmen, the United Transportation Union, the Brotherhood of Maintenance of Way Employes and later, but separately, the Sheet Metal Workers. Now, all the time that the talks were moving ahead from there, we kept the other organizations fully informed, as we hoped that they would be able to settle their individual differences and come back in on the mass negotiations. But it just didn't happen that way.

Q. In this agreement and in the '73 agreement, the pattern has seemed to be that labor got wage and benefit improvements and gave up nothing, in terms of rules, for example. It's inevitable that somebody is going to start wondering what is going on here.

A. That's a valid point. there were no rules changes, for ops or non-ops. There weren't any counter-proposals. But this doesn't mean that we are not moving. I could cite a number of areas of movement with respect to our organization, in connection with mergers and on individual properties, in which we have worked out arrangements which give the carrier more flexibility in its operations. Most of this takes place behind the scenes—on individual properties. It doesn't get much national attention. But the management/labor relationship is not a one-way street, it is not always a case of our demanding and not giving. We are giving.

Q. But on a local basis. . .

A. Right. We're finding out that there are a lot of issues that you just don't handle nationally. The bargaining table in Washington is the place to take care of the common issues, those that affect all employees in a certain organization or all employees in the industry. But you can't do everything in Washington.

Q. One of the key points on which labor has hung tough involves the whole area of stabilization, contracting-out. Is there some way of attacking this problem that might be fair to both the carriers and labor?

A. I think so. As you know, we worked on this in connection with the Surface Transportation Act last year. We were able to come up with an agreement to the effect that the issue of contracting-out would be put to negotiation on individual properties and that if there was no agreement then the union did have a veto power. The railroad negotiators bought that, and I think it was because of the mutual trust we have for each other. Listen, if there is a problem and if you can have dialog, sit down and talk about that problem with any union, you're going to find union people reasonable. Nine times out of 10, you're going to be able to work it out. It's when a carrier just goes ahead and does something unilaterally that you run into all the problems and get into a brawl. As you also know, when we got to Congress with that contracting-out provision in the legislation, we ran into opposition and that provision was removed from the proposed legislation. STA was not enacted, and I'll tell you this: We are not going to back away on this issue, when it comes up before this session of Congress.

Q. Contracting-out of work isn't really a major problem for the Signalmen, though. . .

A. No, though it can be. But we believe we have some answers, and let me give you an example of what we've done—we've done it quietly, without any fanfare, but it's working. In the Southeast, primarily in Florida, railroads have been ordered to install grade-crossing protection within a certain time-frame, with government funds paying for it. OK, I know what your next question is going to be: "Even if the money is there, what happens if the railroad doesn't have the forces to get the job done by the deadline?" Of course, we look at the carrier's record to see what has been done about beefing up forces, and some of those records do show that the carrier has made some kind of effort and in fact has increased its forces. Some don't. Where we have encountered the problem and where the carriers have increased their forces and are still unable to get the work done within time-frames set by the state or Federal government, we have been able to work out agreements which satisfy our requirements and still permit the work to be done, on time.

Q. And those agreements provide. . .

A. Simply, they provide that certain bona fide contractors with the expertise and the experience to do the work competently can bid on certain crossing-protection installation jobs if they have an agreement with us under which the employees working on these jobs are covered by our contracts. Those employees become full dues-paying members of BRS, regardless of whether or not they may be members of some other union. They come under all the provisions of our contracts, they get the wages and benefits our contracts provide. We have kept tight control over

"Railroad people, both labor and management, are not too receptive to change. . .

the situation, but it's working out very well—and the work is being done.

Q. What about the reaction of your own people who are and have been railroad employees?

A. We've had objections, sure. Talking about contracting-out is just like waving a red flag in the faces of a lot of people. People say "You've sold us out." Well, that isn't the case at all. It's no different than if the carrier had supplemented its own forces. All conditions of employment and union membership are the same. And yes, I guess this may be unprecedented in the industry. But it's worked to the benefit of both BRS and the carriers and, as I say, we're getting the job done.

Q. It's hard to understand objections from your members, if all of these conditions are being satisfied. . .

A. I think all of us have been prone to mistakes when we've talked about job stabilization, and some of our members have been led into misunderstanding the meaning of job stabilization. Some people think it means that "I have a job for life, this job, right here, and nobody else will ever do it." That's not the purpose of a job-stabilization agreement. That kind of agreement guarantees employment, yes—but it doesn't guarantee work coming to a particular individual at a particular place. We've had people come to us and say "Look, I don't care if it takes 100 years for the railroad to install that crossing protection, it belongs to me as an individual, it's my job and it's job security and you stretch it out as long as you can." Well, crossing protection isn't put in to help the railroad. It's put in for only one reason—a public need, safety, to save lives of both rail employees and the general public, your life, my life, anybody's life. It's taking too long now to get these protective devices installed, because all of that work should have been done yesterday. And you pick up a newspaper too often and read about an accident, a car, a truck, a school bus loaded with kids. It's pretty hard to sleep nights, if you have to think you've been a party to delaying the installation of protection that might have prevented an accident. So, am I going to stand up and say "Hey, we're not going to go along"? No way—and anybody who thinks I'll say something like that is wrong. That's where I draw the line on being a politician within the organization. We want to get that crossing protection in as fast as possible, and we've found that we can do it and protect the work for our organization. Work, you know, does not flow to an individual. It flows to an organization. Members of that organization have the right to perform the work—but as members of the organization, not as individuals. There's been a lot of wrong thinking on this point and, as I said, some of this is probably the fault of union leadership that has not explained things right. We're trying to change this, but it's tough. Railroad labor is tough. Railroad people, both labor and management, are not too receptive to change.

. . .But you can't be locked into old ideas, because that spells oblivion."

Q. Anywhere?

A. Sure. It applies to people on both sides of the table. We've all been sort of locked in, creatures of habit. But you can't be locked into old ideas, because that spells oblivion.

Q. One new idea in rail labor is that rail labor ought to begin again to speak with one voice, or almost so. What about this reunification of RLEA, where most of the unions that became members of the Congress of Railway Unions are coming back to become affiliates of RLEA?

A. There were a lot of reasons why some unions broke away to form CRU, issues and personalities and so forth. But a lot of things have changed. We all worked very closely on the Railroad Retirement problem, and I guess a lot of us came to wonder: Why two organizations? Because we weren't really that far apart on the issues, and the personalities had changed and what it took was just for some people to start putting the pieces back together. A lot of credit must be given to the chief executives of the CRU affiliates and the RLEA affiliates for their foresight and cooperation in bringing about the reunification. We've done this, effective April 1, with the exception of the Brotherhood of Railway and Airline Clerks. And we expect with reunification RLEA's voice will be a very persuasive and influential voice.

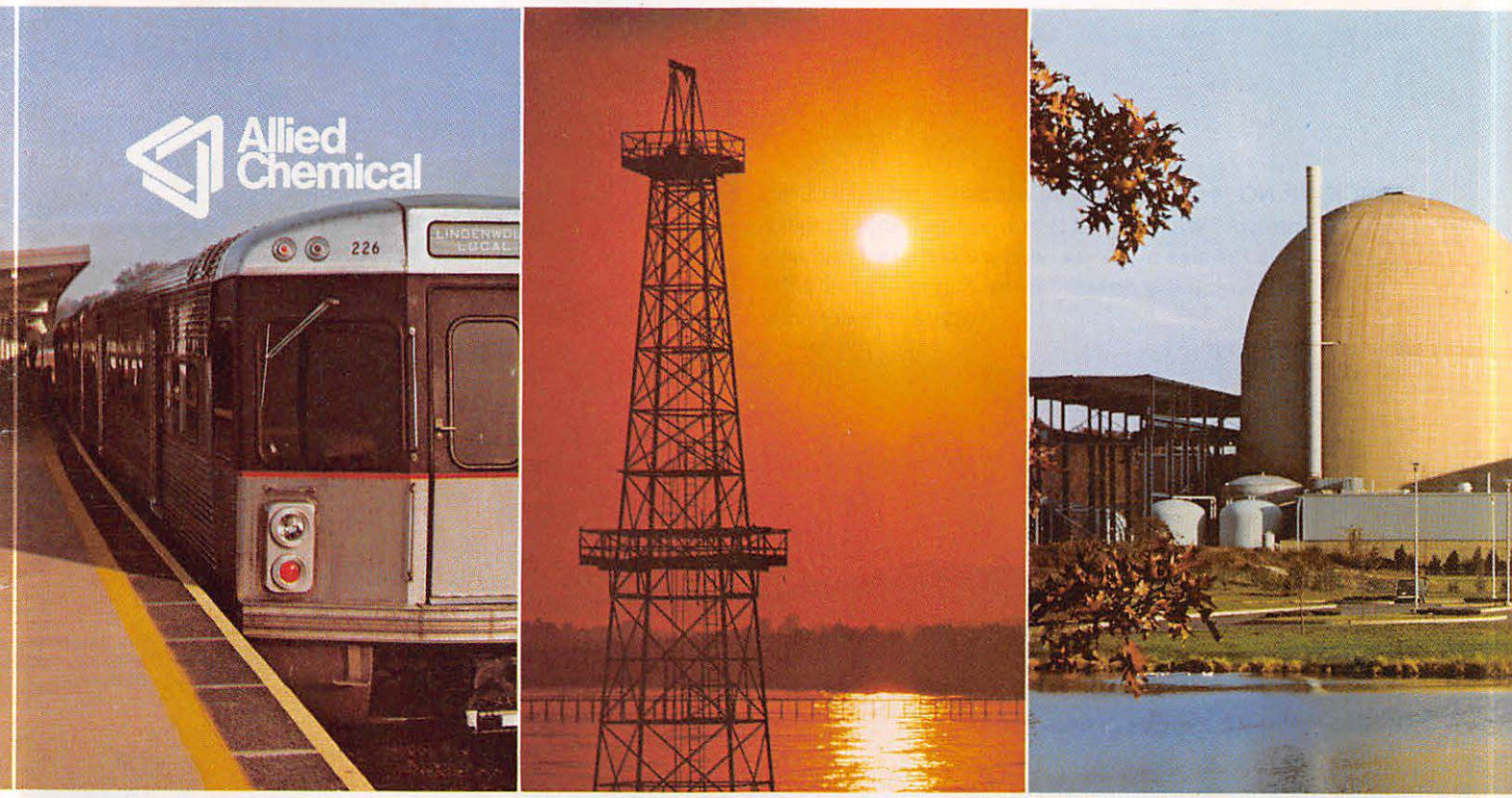
Q. What RLEA had and will have again is affiliation of rather large and rather small unions. . .

A. We've taken that into account, with a limited weighted vote based upon assessments, and assessments are based upon a cap of 50,000 members. In elections, it's still going to be a matter of one organization, one vote. But on other issues, any chief executive can ask for a vote on the weighted formula. Some people worry about this, but I don't. We've had the same sort of thing in connection with the management of *Labor* newspaper and to my knowledge a weighted vote was only asked for once, and that was a spill-over from the RLEA/CRU split. Basically, I believe that RLEA, like a lot of other things, is a matter of getting involved. BRS is a small organization, but we are not afraid to get involved. Our membership wants us to get involved so that we can do our part and make as great a contribution as a lot of bigger unions. As I see it, regardless of the size of the union, if you aren't willing to get involved then you don't have a right to complain. That's the way it has to work.

Q. How binding is an RLEA position on its affiliates?

A. If a union differs on an issue or wants to take no position, all its representative has to do is say this and that union is free to stay out. In past years, before the split, I think RLEA was moving in a direction

(Continued on page 47)



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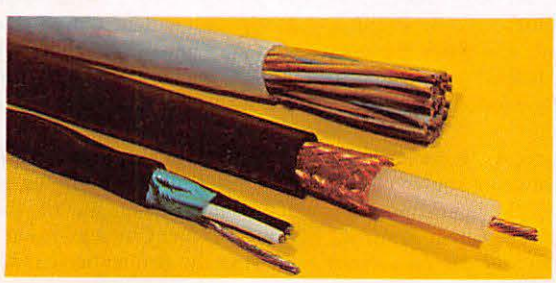

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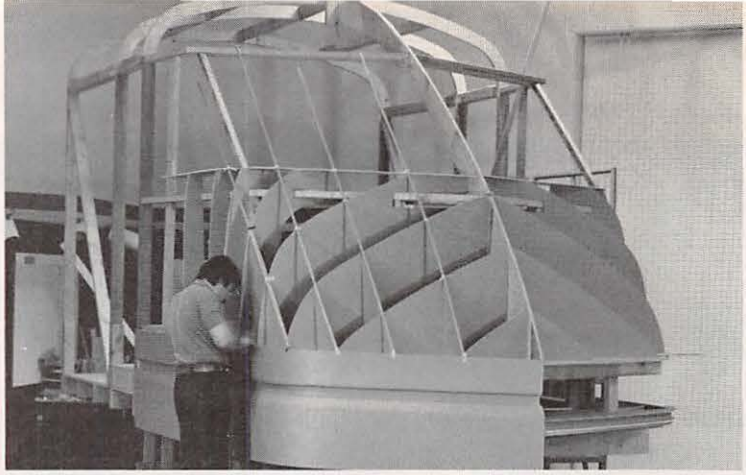
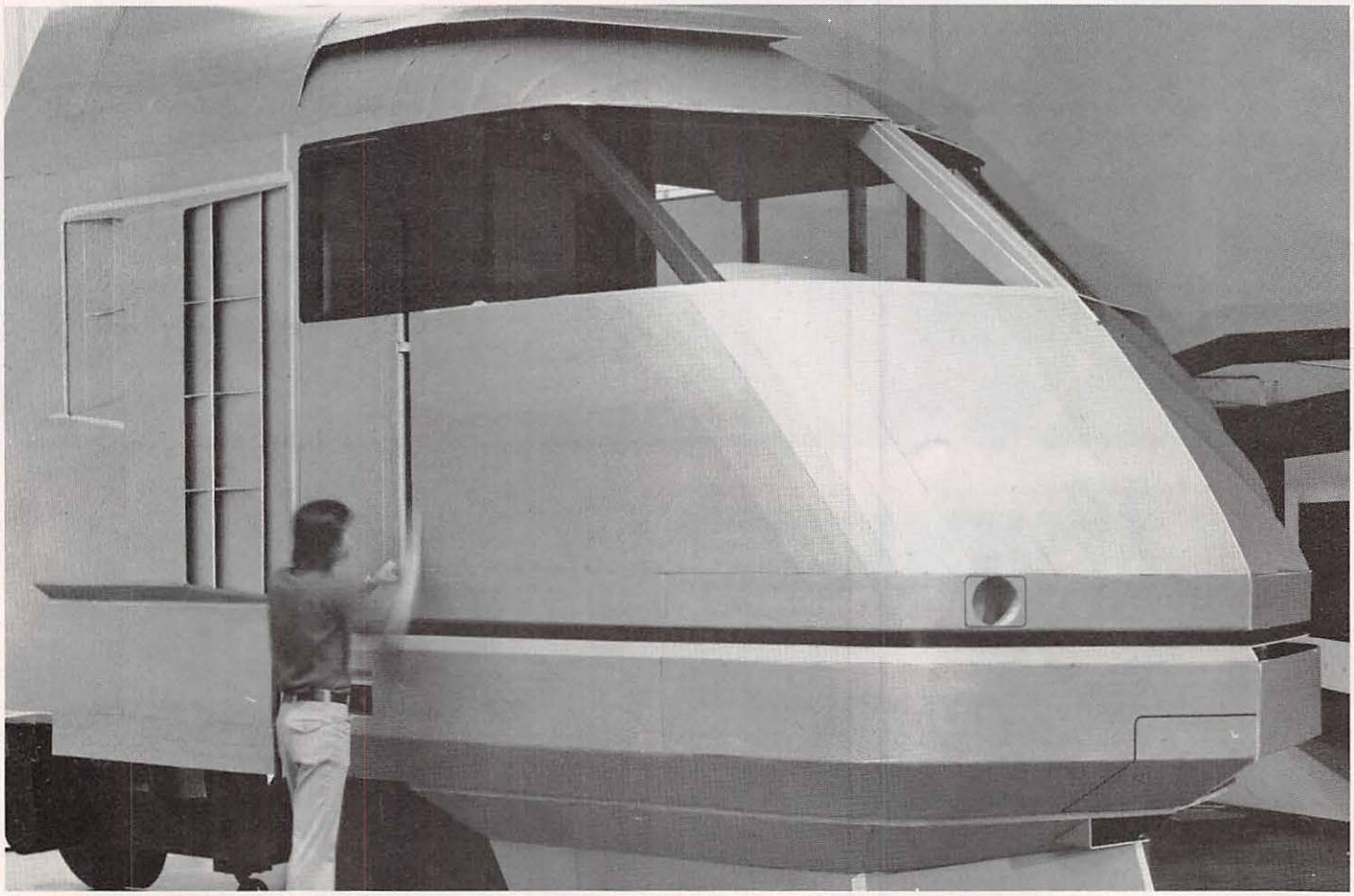


MOCK-UP NO. 1: A paper-foam sandwich material called "Fome-Cor" was applied to a wooden frame to make this full-size mock-up, which Rohr used primarily to develop the design for the cab interior and the operator's console.



Americanizing the Turboliner

By WILLIAM D. MIDDLETON
Contributing Editor

When Amtrak installed its two leased, French-built RTG Turboliners on the Chicago-St. Louis run on Oct. 1, 1973, those two five-car ANF-Industrie gas turbine trainsets assumed an importance out of all proportion to their rather modest contribution to the system's total passenger transportation capacity. For after more than two years of service operated exclusively with the passenger cars inherited from its predecessor carriers, the Turboliners constituted Amtrak's first, all-its-own venture in new rolling stock.

In almost every respect, that initial Amtrak new equipment venture has been an exceptionally successful one. At the end of their first year's operation the two RTG trains had carried 200,000 passengers, accumulated 300,000 service miles, and posted a 92% reliability record. Perhaps even more important, the "new image" Turboliners have helped Amtrak to generate some badly-needed interest in rail passenger travel.

For all their success, however, the RTG's proved to have some shortcomings for service under U.S. operation and market conditions. The two Amtrak-leased trains were merely diverted from ANF production for a French National Railways (SNCF) order, and consequently varied considerably in arrangement, dimensions, and in many of their details from U.S. practice. Passenger accommodations featured vinyl-upholstered, two-position seats, half facing forward and half rearward, that were austere by U.S. standards, and the train's mid-train food service facilities proved much too limited.

Amtrak new equipment plans approved by DOT last June included $18 million for the purchase of six of the ANF Turboliners for Chicago-based services, including the two trains leased in 1973. The

MOCK-UP NO. 2: Eight tons of clay went into the sculpting of a precise full-scale mock-up of the Turboliner's front end. After the design was approved, plaster casts were taken directly from the mock-up for production tooling.

four new trains, received earlier this year, will have seating, carpeting, and food service equipment installed at Amtrak's Brighton Park, Ill., shops. Except for the more luxurious interiors, however, the four new trains are still the same basic French design as the original pair.

● **Rohr's redesign.** A further seven Turboliners for Amtrak's Northeast Corridor services, ordered last July under a $30.3-million contract with ANF's North American licensee, Rohr Industries, will constitute a substantial change from that basic French design, however. The trick that Rohr intends to pull off will be the not inconsiderable one of redesigning the trains to better meet U.S. operating and marketing needs, without sacrificing any of the reliability and performance virtues of the well-proven original ANF design.

Guidelines for the train's redesign were laid down by Amtrak. Among the principal design objectives:

—Structural changes required to develop the full 800,000-pound buffing strength standard set by FRA for trains of over 600,000 pounds.

—Dimensional changes to raise car floor levels to the standard 51-inch height for high-level platforms, and widening of car bodies to a full 10 feet for greater interior room.

—Addition of traction motors and third rail shoes for electric operation into Amtrak's New York terminals.

—Changes to brake systems, couplers, and other electrical and mechanical components for conformity with U.S.—and Amtrak—standards.

—Front-end and cab-interior redesign for greater crew safety, comfort, and visibility.

—Interior redesign to provide a high standard of passenger comfort and luxury.

Frames will be redesigned to satisfy the 800,000-pound buffing strength requirement. A raised floor structure and higher sidewalls will provide the 6-inch increase in floor level needed to accommodate high-level platforms and U.S. standard coupler heights. The raised floor will also provide space for electrical raceways and similar requirements. The increase in car body width from 9 feet 5 inches to 10 feet will be accommodated by an increase in frame width and the addition of a 7-inch tangent section in the standard ANF roof structure. The design will retain a taper to a narrower end bulkhead provided in the original French design to permit close coupling.

A revision to the door control design

(Continued on page 26)

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The interior accommodations will be equivalent to first

(Continued from page 21)
will provide for full remote operation. Traps will be provided for high-level platform operation, while a folding step will permit access from low-level platforms without the use of stools. Tubular rubber intercar closures provided in the original design will be replaced by an accordion-type closure.

Third rail propulsion for New York terminal operation will be provided by a 600 V D.C. traction motor in each of the train's two power cars. The motors will occupy a space provided for baggage in the original design, and they will be linked to the hydraulic transmission by an additional input shaft. Third rail shoes, mounted on the power trucks, will be adaptable for either over- or under-running third rails.

A standard U.S. Type 26 brake control system will replace the French design, and composition tread brake shoes will be used in place of the cast iron shoes specified in the original design. The higher braking effort available from the composition shoes will permit a reduction in the number of disc brake units from two per axle to one per axle on each non-powered truck, with a corresponding weight savings.

The European style between-car couplers of the original ANF design will be replaced by Type H Tightlock automatic couplers, while a Type E retractable coupler will be provided at each end of the trains.

Other significant mechanical and electrical modifications include a change to U.S.-supplied air-conditioning units of higher output, and changes to auxiliary power unit output and electrical power system arrangement to conform to Amtrak standards.

● **Feat of clay.** Some dramatic changes of the outward appearance of the trains have been taking shape over the past few months in the industrial design division at Rohr's Chula Vista, Calif., headquarters. In an approach more often associated with automobile design studios than with railroad equipment manufacturers, Rohr's industrial designers have employed wind tunnel model tests and a pair of full-size Turboliner front end mock-ups to develop their design.

First a one-fifteenth-scale fiberglass model of the train, developed from a clay model, was built for wind tunnel testing at San Diego State University. Among the design data produced by these tests was a determination that a curved, rather than flat, windshield would produce considerably reduced wind resistance. This feature has been adopted for the final design.

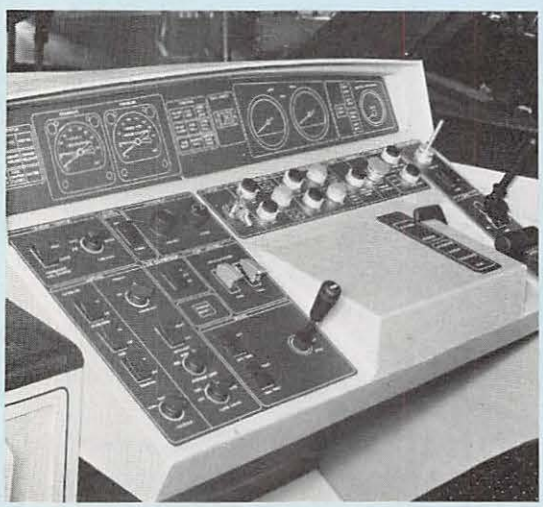
Next, two full-size mock-ups were developed from full-scale tape drawings. One mock-up, used principally to develop the design for the cab interior and an operator's console, was built of wood and "Fome-Cor," a lightweight paper-foam sandwich material.

Finally, a precise full-scale mock-up of the front end was sculpted in some eight tons of special clay applied to a wooden frame. According to Rohr, it may have been the "largest ever" clay model of its kind. After the model was shaped to its final form, a vinyl material was stretched over the clay to permit painting in the color scheme selected by Amtrak. After final approval of the design, plaster casts were taken directly from the mock-up for production tooling.

The Rohr front end design incorporates several significant changes from the ANF design. Extension of the front end by more than two feet from the French design, incorporation of heavier collision posts, and elevation of the cab floor level will afford better crew safety and improved visibility. Redesign of the cab interior will provide for relocation of the control position to the right hand side, a new "human engineered" control console, and cab air conditioning.

The cab section, as far back as the leading edge of the door, will be an integral fiberglass shell applied to the steel collision posts. Hardware for headlight, tail light, and flush marker light fixtures will be integral with the fiberglass cab shell. A pair of alternately flashing Xenon warning lights and a flashing red warning light will be mounted on the cab roof.

● **Like an airline, first-class.** Interior accommodations for Amtrak's Northeast Corridor Turboliners will be a low density



THE REDESIGNED "human engineered" control console is shown here as it appeared in a full-size cab mock-up.

FIBERGLASS MODEL (right), developed from clay model, was used for wind tunnel tests at San Diego State University. Both models are one-fifteenth scale.

arrangement described as equivalent to first class airline standards. Reclining seats with fold-down trays will be installed at a pitch of 38 inches, reducing capacity of the trains to 276 passengers from their "standard" capacity of 308. Movable tracks will permit modification of the seating arrangement for higher densities.

Walls and ceilings, as well as floors, will be lined with carpeting, both to contribute to a luxurious atmosphere and to reduce noise level. Luggage racks, which will stand off from the walls for improved air flow and lighting, will also be lined with carpeting. Lighting will include center lights, cove lighting at the sides, and reading lights installed in the luggage racks. Windows will be double glazed with an outer pane of polycarbonate and an inner pane of tempered safety glass which will be tinted to eliminate need for draperies.

Food and beverage service will be from a Metroliner style snack bar at the center of the middle car in the train.

Rohr's "Americanization" changes to the original ANF design will add about 74,000 pounds to the weight of a five-car Turboliner, largely to the two power cars. This, in turn, will require redesign of power truck frames, axles, and bearings to accommodate the heavier loads.

● **Basic design unchanged.** Almost as significant as Rohr's changes to the Turboliner design, are the changes that *aren't* being made. "We will make changes slowly," says Rohr's Turboliner program manager Jerry Pier, citing the proven quality and high reliability of the basic French design. Consequently, Rohr has retained, essentially unchanged, the same Turbomeca main propulsion and auxiliary power gas turbines, and the Voith torque converter transmission and cardan shaft and gear box drive system of the ANF design. Save for the power truck changes required by the greater weight of the Rohr train, the ANF fabricated steel trucks will also be basically identical to the original design.

Performance characteristics, too, will be substantially the same as the original ANF trains.

Production of the seven Amtrak Turboliners will be divided between ANF and Rohr. ANF will supply the basic car body structures, trucks, and power plants, while Rohr will install the fiberglass cab sections, other U.S.-built equipment and components, and will complete the interiors. Carpeting and seating will be installed by Amtrak. Design support for the Rohr effort is being provided by a project team at the company's Chula Vista, Calif., headquarters, although the trains will probably be assembled at the firm's Winder, Ga., rail car manufacturing plant. A final decision on the construction site has not yet been made, according to Rohr. Current schedules call for delivery of the first train to Amtrak by April 1, 1976, with completion by the end of September 1976.

● **New York market?** Although only the seven-train Amtrak order is firmly in hand, Rohr obviously is banking on a substantially larger market for Turboliner. The firm's hottest prospect at the moment is the State of New York, where a transportation bond issue passed last November will provide funds for five or six trainsets for an Amtrak 403-b service in the New York-Albany-Buffalo corridor.

Both the Canadian LRC and the Garrett and GE gas turbine-electric prototypes are also rivals for this market, but Rohr stands to gain an important advantage over its competitors if, as tentatively planned, Amtrak's maintenance base for the now-building Northeast Corridor Turboliners goes in at New York.

The State of Florida, which is looking at a possible 403-b Turbo service between Miami and Orlando, is another—but less promising—prospect. So far the state hasn't come up with a satisfactory basis for financing the service.

Other possibilities are present, too, in the growing interest in state-financed Amtrak 403-b services, as well as prospects for further orders for Amtrak's basic services. If—and that's a big if—Rohr can successfully pull off its objective of improving upon the basic RTG design, while retaining all of its substantial original reliability and performance features, there could well be a long and profitable run ahead for Rohr's Americanized Turboliner. ■

ROHR INDUSTRIES AMTRAK RTG TURBOLINER SPECIFICATIONS

Type	Five-car, bidirectional gas turbine trainset.
Length	424 ft. 9 in.
Height	12 ft. 10 in.
Width	10 ft. 0 in.
Weight	570,000 lb.
Construction	Lightweight steel, with fiberglass cab shell each end.
Couplers	Type "H" tightlock, automatic (between cars). Type "E" retractable, automatic (ends).
Seats	276
Food/beverage service	Mid-train snack bar.
Main propulsion	2-Turbomeca Turmo III gas turbines at 1140 h.p.
Auxiliary propulsion	2-300 h.p., 600 V D.C. traction motors.
Auxiliary power units	2-Turbomeca Astazou IV gas turbines at 430 h.p., driving 320 kW, 480 V A.C. 60 Hz alternators.
Transmission	Voith Hydrodynamic transmission Type L411 BRU.
Trucks	ANF Industrie fabricated steel, with SKF spherical roller bearings.
Wheels	34 in. diameter, equivalent to AAR Class A.
Brakes	Voith Hydrodynamic with Type 26 control. Wheel slip control. 40 tread brakes. 16 disc brakes.
Fuel capacity	2,560 gal.
Range	850 mi. (approx.)
Rated maximum speed	125 mph
Acceleration	1.0 mphps initial. 0 to 100 mph in 350 seconds.
Braking	Full service braking, not less than 2.1 mphps below 70 mph. Emergency braking, not less than 2.5 mphps below 70 mph, Stopping distance from 90 mph, 3,250 ft. with full service braking; 3,000 ft. with emergency braking.

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Washington: Metrorail heads for

By KENNETH G. ELLSWORTH,
Associate Editor

Next year, millions of Americans will be returning home from a Bicentennial vacation in their nation's capital with a new word added to their vocabulary—Metrorail.

Under the pre-dedication, Phase I timetable, the Washington Metropolitan Area Transit Authority (WMATA) will begin limited revenue service (7 a.m. to 7 p.m.) sometime early this fall on 4.6 route miles of line serving five subway stations and one elevated station. The latter is the temporary northeastern terminus, Rhode Island Avenue; from here, the tracks run south 1½ miles (part elevated, part surface), go underground one-quarter mile north of Union Station, and proceed to the Phase I western terminus, Farragut North Station.

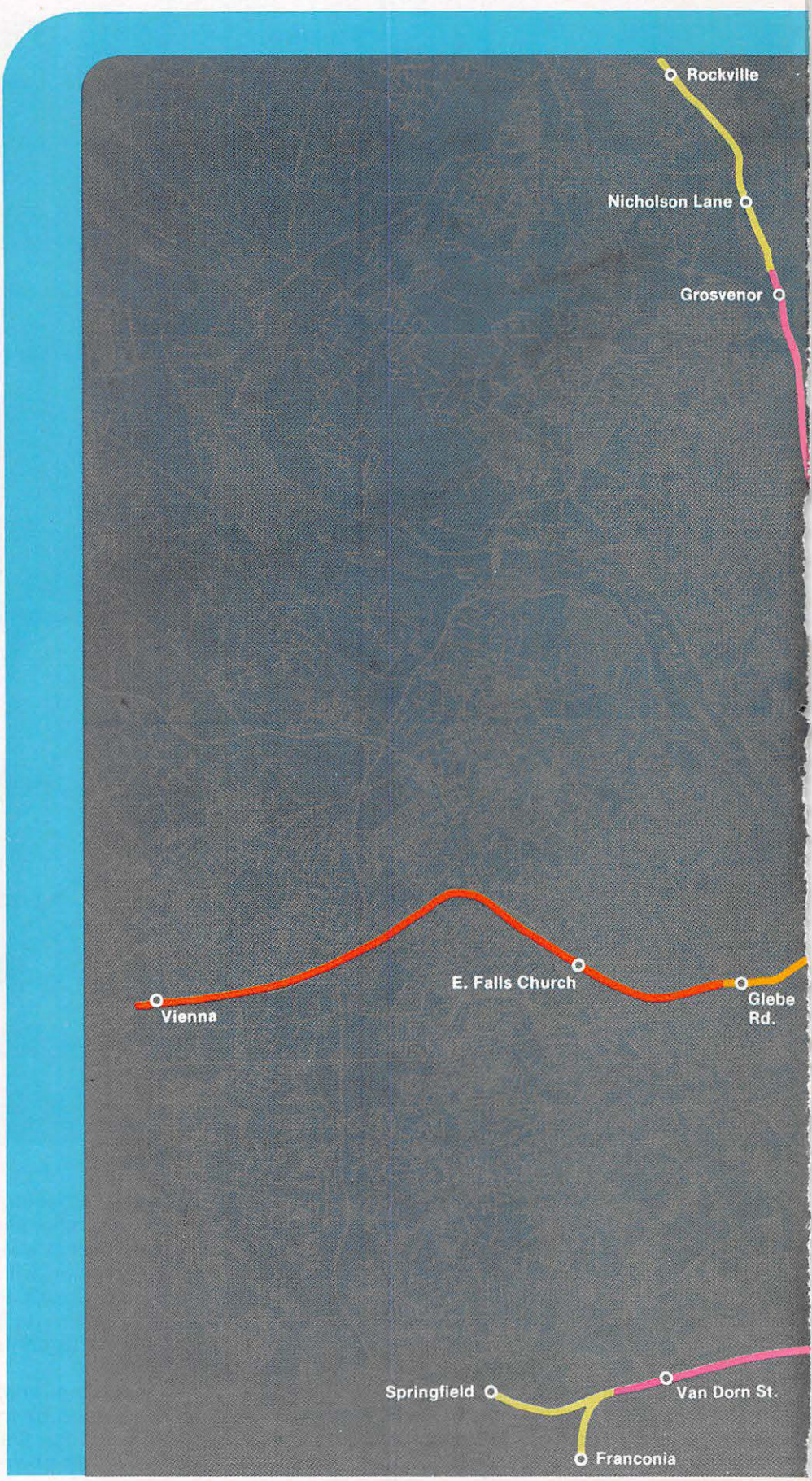
With the scheduled completion of Phase VII in 1981, the WMATA system will have 98 route miles serving 86 stations—47 miles underground, 42 at surface, and 9 on elevated structures. The Rhode Island station will have a parking lot—the first of 32 stations which will provide a total of 26,250 spaces for park-'n-ride customers six years hence.

Formal dedication of WMATA's Metrorail is scheduled for the latter part of 1976, when revenue operations begin for Phase II. Total route miles and stations serviced at that time will be 18½ and 25, respectively. In this phase, a Silver Springs, Md., commuter will be able to get to Union Station in 12 minutes (7½ miles) or to National Airport in 28 minutes (about 16 miles). Routes will be color coded to designate areas serviced.

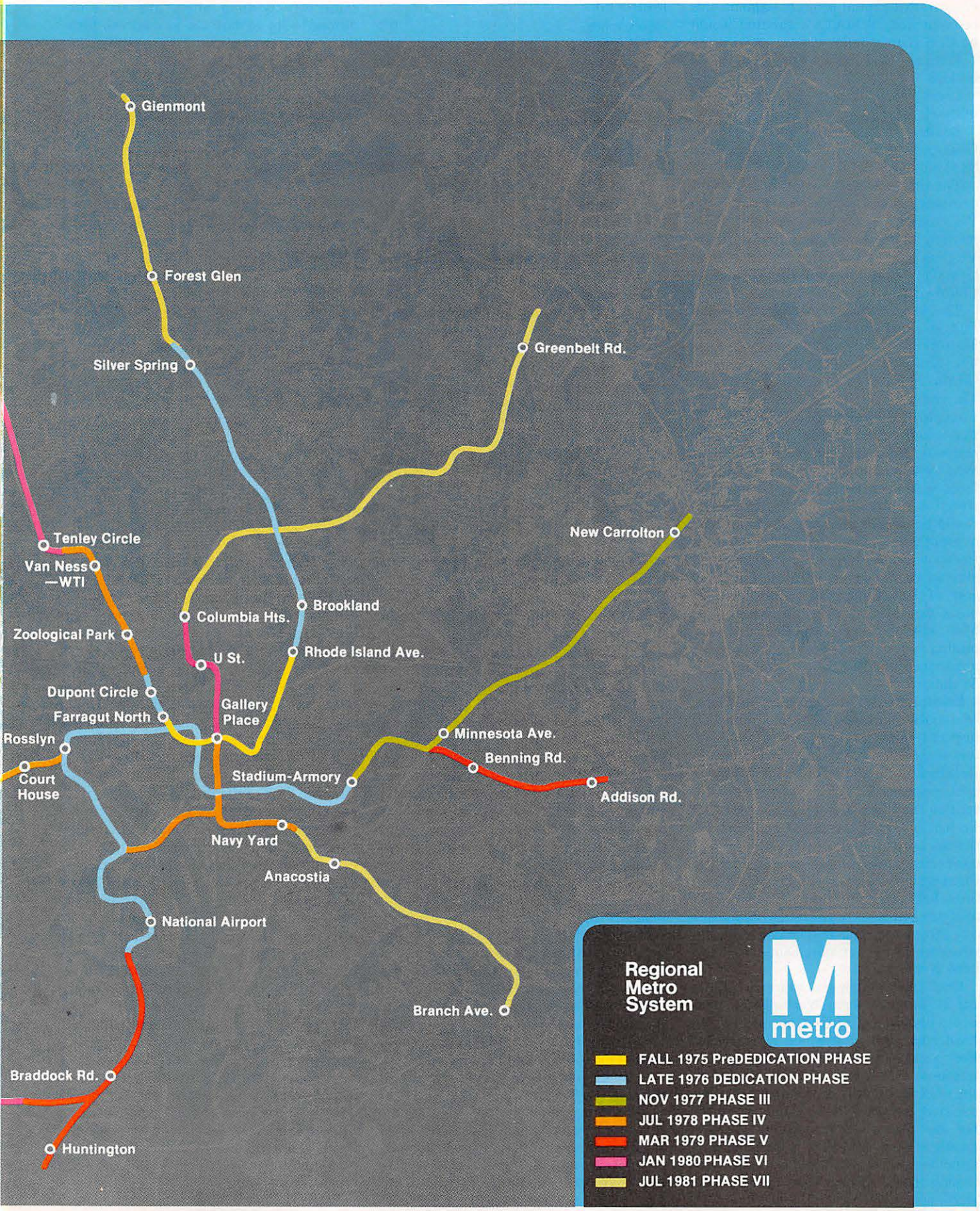
● **Best, latest—and costliest.** Design, engineering and construction features of the Washington Metrorail system (RA, March 12, 1973, p. 34; Sept. 10, 1973, p. 56) are on the "must see" list for transit experts around the world. And for good reason: WMATA is utilizing the best and latest in off-the-shelf technologies for everything from laser-beam guided earth tunneling to station construction.

Unfortunately, the superlatives don't stop with engineering and construction concepts: they extend to costs. Inflation started eating into WMATA budgets right from the groundbreaking in December 1969, when the estimated cost for completion by 1980, the initial target date, was $2.5 billion. By the following December, the total estimate was upped to $2.980 billion. And in December 1974, WMATA told its sponsoring bodies that cost overruns for Metrorail construction would total $1.477 billion. Completion is now slated for 1981 with a total estimated cost of $4.454 billion.

To help finance the cost overrun,



pre-Bicentennial opening



WMATA has asked for an additional $1.257 billion in Federal money. (This would be in line with the 80% Federal/20% local matching formula that Congress some time ago approved for mass transit capital projects.) Should this be approved, WMATA's funding would be divided up as follows:

Federal—$2.7 billion (up from $1.42 billion).

Local—$856 million (up from $722 million).

Bonds—$1.2 billion authorized by Congress (of which WMATA has sold $820 million to date).

The regional membership of the board provides for two members each from the Washington Suburban Transit Commission (State of Maryland), the Northern Virginia Transportation Commission (State of Virginia), and the District of Columbia City Council.

The U.S. Office of Management and Budget asked what the effect would be on Metrorail if additional Federal funds were not forthcoming. The then chairman, Cleatus E. Barnett, replied in some detail. The resulting system, he said, would be a truncated 47.7-mile, 48-station network that would not be efficient to operate; the regional interests represented in the WMATA interstate compact would be faced with such serious shortfalls of construction that elected officials concerned would be unable to justify any additional expenditures; some 300 lane miles of freeways would have to be constructed over an eight-year period at an estimated cost of $4.5 billion; an additional 980 buses would have to be purchased; and $140 million in construction and $23 million in design projects would have to be abandoned along with the elimination of 38 stations.

● **Environmental studies jack up costs.** Materials shortages and environmental impact studies have been contributing factors to the cost overrun. Concerning environmental impact studies, one WMATA spokesman says, "We feel like we're inventing the wheel over again, since we felt we had observed the intent and spirit of the laws with our environmental studies conducted back in the Fifties and Sixties. Final design of portions of the system have been held up for months while further analyses and legal consultations are under way through the courts. The last of the environmental impact statements have now been prepared."

One such statement concerns Yuma Street in Northwest Washington. Residents became alarmed at noises from the hard rock tunneling which had reached their area 100 feet below ground, and the questions they raised have sufficed to halt the work for months. Estimates of costs associated with this single Yuma Street delay are placed at $5 million. Another estimate from WMATA is that the construction delays and legal complications arising from all environmental impact studies may total $250 million.

WMATA AT A GLANCE

Metrorail

Route miles	98
Subway	47
Surface	42
Elevated	9
Stations	86
Subway	53
Surface and elevated	33
D.C.	43
Virginia	21
Maryland	22
Transit cars	556
for full-system operation scheduled for 1981	
Cars on order	300
Cars to be advertised for bidding in 1976	256

Metrobus

Miles of bus route	1,100
Primary bus routes	770
Passengers per week	2,500,000
Number of buses	2,200
Buses on order	none
WMATA personnel	5,091
Management	356
Metrorail	111
Metrobus	4,624

● **Esthetic considerations.** The major showpieces of the transit plant are the subway stations. Their uniformity of soaring, coffered arch design rising 35 feet above the track owes something to the Commission of Fine Arts of the Nation's Capital. The Commission has a great deal to say about what is done with structures within visual range of the Capital dome, and early in the picture of transit development recommended that one fundamental design be obtained and applied uniformly throughout the system. Surface and elevated stations all feature a gull-like canopy roof shelter.

Some of the station features incorporate modifications of functional and design elements of other systems observed by WMATA officials who traveled the world in the pre-design stage to study systems in Great Britain, Europe, USSR, Japan and Canada as well as the U.S. International characteristics in the WMATA subway stations include:

—Free-floating subway mezzanines, clear of the walls, found in Montreal.

—Long, graceful escalators typical of Moscow.

—Pulsating lights at the edge of the boarding platform, familiar to riders of the Paris Metro, to herald by 20 seconds the arrival of a train.

● **"Envelope" cooling.** Metrorail patrons will have the benefit of air conditioning at all 53 subway stations—the first transit system to be so designed from the outset. "Envelope" type cooling will be the major system employed. This drapes cool air in selected regions in much the same way bowling alleys are air conditioned—up to but not beyond the foul line. Louvers above the heads of passengers on the platform will feed air to be taken out through vents beneath the platform where heat generated by the traction motors can also be exhausted. In order not to overload the station air conditioning system or cause discomfort to waiting passengers, the hot air blast created by the piston action of the train emerging from the tunnel to the station will be expelled through vent shafts near the station portals. A mechanical ventilation fan shaft is part of each station venting system (and at other selected points) to remove the vacuum of hot air trailing the end car. Also, the 60-inch-diameter fans are reversible so that air can be pushed from one area and drawn out through another shaft—as in the case of a stalled train or other emergency such as smoke from a fire.

Other than stairways provided in the vent shafts for access or emergency exit, the subways have no stairs. Entrance and exit to all subway stations and platforms is by escalators. There are 640 in the system; some are 200 feet long. All are open at the ground level and provide exceptionally stable walk-on and walk-off by having three risers moving level at top and bottom. Escalator power units are at 20-foot intervals so that if one unit fails another can take over the operating load with no interruption.

● **Help for the handicapped.** Every effort has been made to enable the physically handicapped to use the Metrorail. The blind, upon alighting from the escalator, can guide themselves by handrails into the mezzanine, to ticket vending machines and to the escalator down to the station platform. Much as the blinking lights alert the deaf to the arrival of a train, the one-foot-wide concrete boarding apron in which the lights are embedded alerts the blind to a change of surface footing from the otherwise smooth-tiled platform. Elevators for severely handicapped persons are provided at all subway stations (approximate cost, $65 million) with a glass enclosed "cage" at the surface.

Station platforms and mezzanines are free-standing, and platforms are separated by three feet from the coffered walls—hopefully to deter riders with graffitti in mind. The view of the station from the mezzanine is of an uncluttered pillar-free area, apart from the few vertical pylons which are station signs. Some controversy has arisen about the legibility level of book-binder type signs viewed from a moving train, but WMATA officials believe the frequency of their placement (every 30 feet) will assure repetitive cognition.

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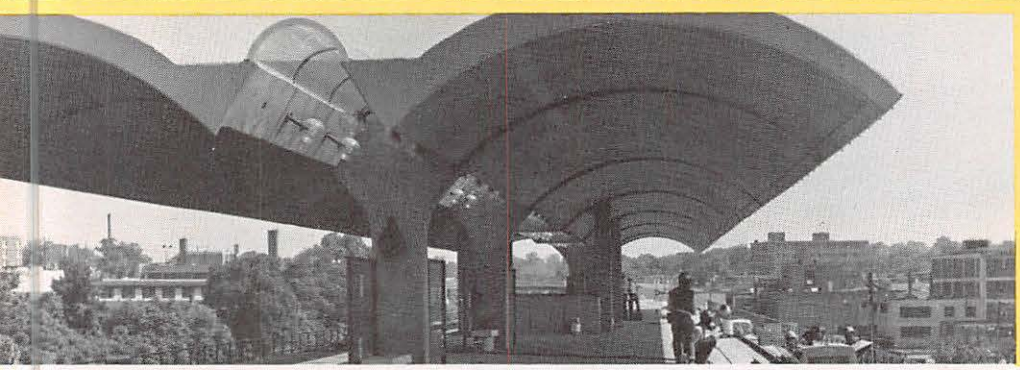
COFFERED ARCHES rising 35 feet make subway stations architectural showpieces.



RHODE ISLAND AVE. elevated station, now complete, features gull-like canopy.

veillance via closed-circuit television cameras to be monitored from the station agents kiosks on the mezzanine. The trains will offer a passenger security "first" with intercoms at both ends of each car marked "For emergency use push button."

Noise diminution is sought through placement of acoustical panels in each coffer in the vaulted arch enclosure, and in the full length of the recessed area underneath the platform to absorb track noise. Low volume loudspeakers are placed in every other coffer to assure a uniform auditory level for public address announcements. A safety feature is the generously recessed area below the platform so that anyone falling onto the track can easily roll to safety—and anyone who leaps will have an option to reconsider.

● **Mileage-based fares.** The only vending machines in the system are those in the mezzanines which will dispense a fare card in exchange for money, bearing the card cash value both visually and on a magnetically coded stripe. Money can be deposited for a one-way ride or a $20 commutation ticket. A fare schedule has not been approved, but WMATA is proposing 20 cents for the first mile and six cents for each additional mile with a rush-hour schedule of 25 cents and 7½ cents, respectively.

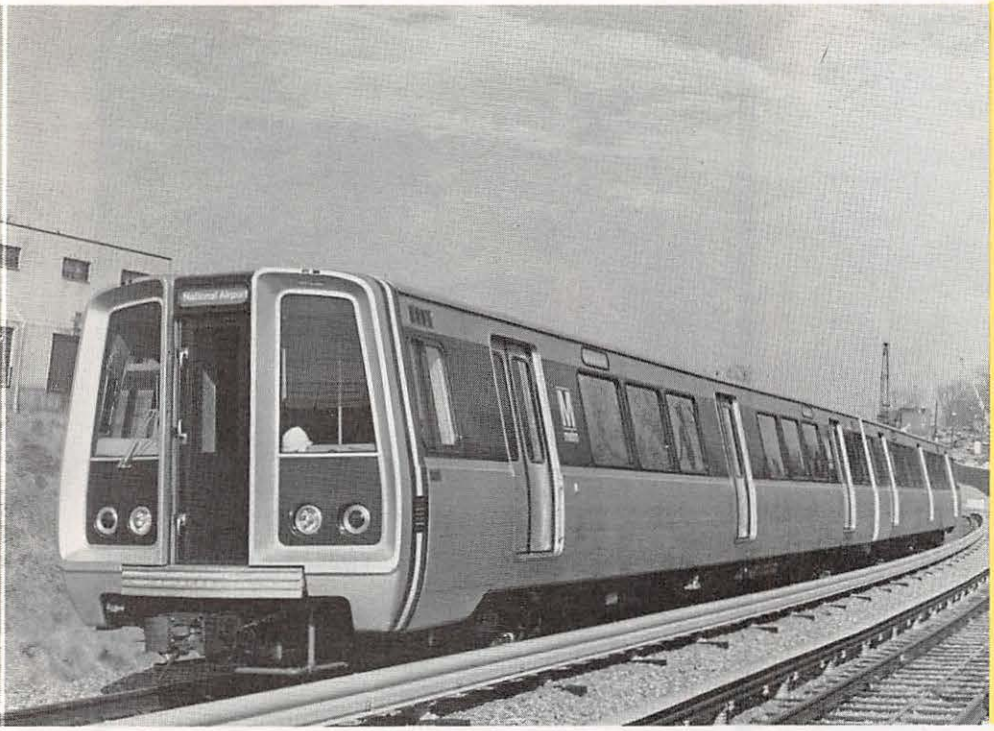
Construction is currently under way on 40 Metro stations and 40.4 miles of line. Under final design are another 25 stations and 30 miles of line. Of the 86 stations, 53 are subway and 33 are surface. The District of Columbia will be served by 43 stations, Maryland by 22 and Virginia by 21.

The 47 miles of underground track will be tunneled through 15 miles of hard rock, 11 miles in earth and 21 miles of cut-and-cover.

Almost equal in their sharing of the total 98 route miles of WMATA Metrorail are Maryland with 29.4 miles and Virginia with 30.3, with the balance of 38.3 in the District of Columbia.

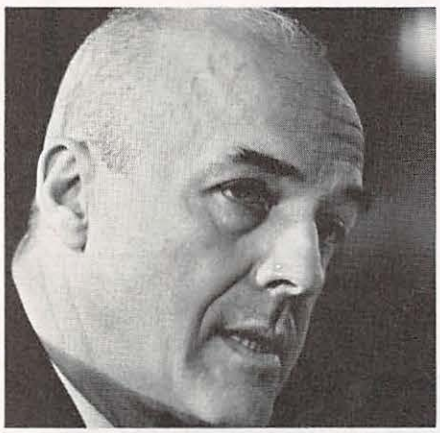
Continuous-welded 115-lb rail is used throughout the system. Underground, it is laid on sound- and vibration-absorbent elastomer pads resting on a concrete base. Further reduction of wayside noise and vibration is obtained where Metrorail alignment with relation to certain buildings may produce noise-vibration levels higher than established criteria for the area. For such installations, the rail is on concrete track slabs which "float" on fiberglass pads, positioned horizontally and vertically, virtually isolating the slab from the concrete tunnel foundation. Special trackwork, such as crossovers and switches, uses the "floating" slab design. The 150-lb third rail is butt-welded. Wood ties are used on ground level trackage.

Washington Metro's elevated section will have a uniform design in that all spans will be carried on a single concrete column at each support point. The structures for track employ two construction techniques. One uses pre-cast concrete box girders and the other is cast-in-place



Major subcontractors to Rohr Industries for 300 WMATA Metrorail

Westinghouse Electric Corp. . . . . Propulsion & Controls
Rockwell International . . . . . Trucks
Trane Company . . . . . Heating & air conditioning
Abex Corp. . . . . Braking system
Vapor Corp. . . . . Door operators
Grimes Manufacturing Co. . . . . Interior & exterior lighting
Ohio Brass. . . . . Couplers & drawbar
Safety Electric Equipment Corp. . . . . Motor-generator unit
Teleweld Inc. . . . . Destination signs
Midwest Audio Corp. . . . . Passenger communications systems
Motorola Radio . . . . . Radio
Rohr Electronics Division. . Console
Orplan (Brazil) . . . . . Seat frames



WMATA GENERAL MANAGER Jackson Graham has been on the job in Washington eight years.

concrete decks with steel deck girders. Direct-fixation type rail fastenings are also used.

● **Car tests "encouraging."** The first of 300 Metrorail cars, being built by Rohr Industries, Inc., are being run 16 hours a day as part of extensive testing on the trackage to be opened as part of Phase I. A total of 556 cars are planned for the system's full operation; WMATA will advertise for bids on the balance of 226 cars during 1976. Test results to date, according to WMATA's general manager, Jackson Graham, have been encouraging. The cars seat 81 passengers and have standing room for 94.

The Rohr cars cost about $300,000 each, and operate as semi-permanently coupled "A" and "B" units. Three sets of sliding doors are on each side of the 75-ft-long cars. Rohr, which also manufactured the BART cars, is assembling the WMATA cars at its Winder, Ga., plant. The company's extensive background in aerospace technology, including airframe fuselages, shows up in the transit car designs. Car weight of 72,000 pounds reflects the use of brushed aluminum for the exterior as part of the "semi-monocoque" design with the body integral with the chassis. Similar design is used in the construction of jet aircraft to achieve maximum strength at minimum weight. Some of the aluminum extrusions on the external structure run the full length of the cars. Conservation of electric energy is enhanced with a lower car tare weight requiring less power to propel itself.

● **Automatic controls.** Train consists will be from two to eight cars (or one to four married pairs) with an eight-car train using the full length of the 600-foot subway stations. Automatic train control installed by General Railway Signal provides an on-board back-up system which will enable the train operator/attendant to override the electronic controls in the event of malfunction by the ATC. Three subsystems back up the ATC. Automatic Train Protection (ATP) imposes speed restriction on curves and grades, and speed limits assure train separation. Automatic Train Operation (ATO) performs the "motormen" functions. Automatic Train Supervision (ATS) handles station and line supervision from central control, providing functions that include traffic regulation for the arrival and departure of trains from all stations.

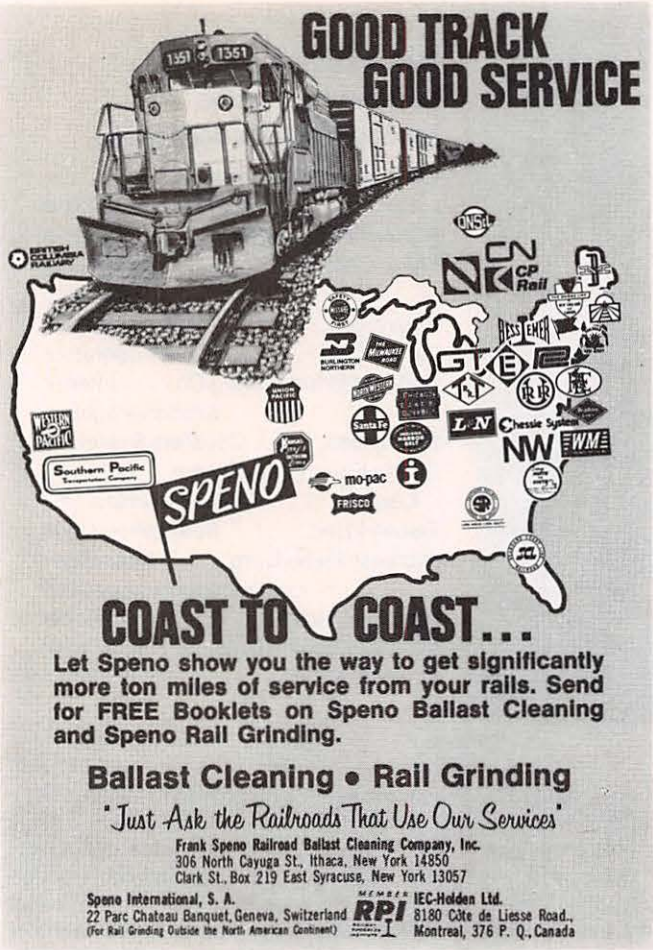
Training of operators and maintenance personnel for the Metrorail is well under way at WMATA headquarters and in the major repair facility at Brentwood Park just north of Union Station. Graham notes that a number of the veteran Metrobus operators had extensive experience with electric traction equipment from their previous years as operators on the old D.C. trolley system, and a number have volunteered for transfer to the Metrorail.

Light rail vehicles (LRV's) have no role in WMATA's transit system planning. The 23 years of planning and construction which have gone into bringing Metrorail to its present stage include the provision of a reasonably comprehensive transit grid system so that Metrobus and Metrorail will complement each other with major interconnecting points in the city and outlying regions.

The ultimate economic impact of Metrorail on the Washington area is viewed in most quarters as being extremely beneficial. Realtor magazine, in its February 1975 issue, reports that the benefits expected are "not only in improved and less costly mobility, but in real estate values and attendant increases in property assessments and tax revenues. . . Planners estimate that the Washington area will receive a $3 return for every dollar invested in the system."

The common interests of the nation's transit experts make for a close-knit community. they know that the problems and experiences they can share with each other can only help to build better transit systems.

● **"Now it is our turn to help."** "The helping hand extended by other authorities to WMATA, and particularly from BART officials who have been very generous in passing along their experience, is something we have appreciated over the years," says Graham. "Even today, we have the cooperation of PATCO in putting our train operators through a training program. And now it is our turn, and happily so, to be able to offer our experience and, perhaps, be of some help to people in Atlanta and Baltimore who are getting into their own transit programs." ■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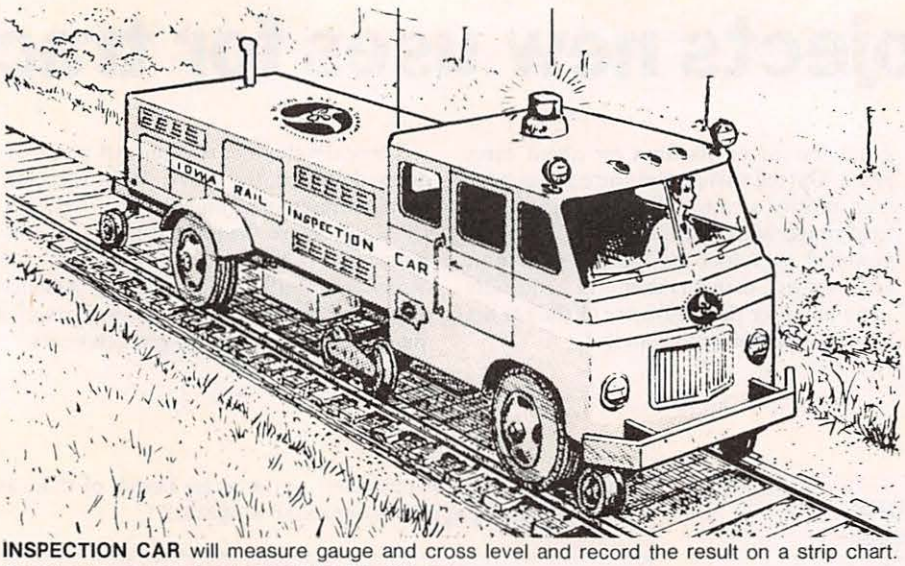

INSPECTION CAR will measure gauge and cross level and record the result on a strip chart. Speed when measuring track will be 5 to 35 mph.

Iowa orders track-geometry car

Evaluation of railroad tracks will soon have an entirely new dimension—inspection by a state-owned and operated track-geometry car. By October of this year the State of Iowa expects to start operating its own track-measuring car over the railways in that state.

Plans of the state to acquire and operate a track-geometry car surfaced on March 12 when a purchase contract was signed between the state and Rail Tech-Modern Machine, which will design and build the car. For the state the contract was signed by Victor Preisser, director of transportation, State of Iowa. For Rail Tech-Modern Machine, it was signed by Paul T. Jones, president.

To be known as Geo-Trac II, the car will be a self-propelled rubber-tired vehicle with a flanged-wheel attachment to permit operation on the highways. It will be designed to measure gauge and cross level as the vehicle moves over the track at a speed of 5 to 35 mph. A strip chart will record the measurements along with such landmarks as mile posts, bridges and crossings.

The reasoning is that gauge and cross level are the two most important and descriptive parameters of the track structure. From these two measurements, it is held, at least two-thirds of all defects in track geometry can be inferred.

● **How it will be used.** Plans of the state are to use the track-geometry car to develop and maintain an "inventory of track conditions" for all main and branch lines in the state, explains Paul C. Heitmann, acting director, Railroad Division, Iowa Department of Transportation. This would be done by operating the car over the approximately 9,000 miles of such lines in the state once a year.

From the measurements developed by the car the state hopes to develop what Heitmann calls a "sufficiency rating" which would be based mostly on safety considerations. This would be similar to a rating that is now developed for highways in the state.

Another objective will be to identify those rail lines having a priority need for detailed visual inspection. The attention of the state's inspection force would then be directed to the areas with the highest priorities. Heitmann explains that a feature of the car will permit tolerances to be set for the applicable specifications of the FRA Track Safety Standards, depending on the class of track.

The car will be considered an extension of the visual track inspections now performed by state inspectors, Heitmann says. Present thinking is that it will be operated by the state's senior track inspector, and that, if at all possible, a representative of the railroad will ride the car during inspection trips.

● **Benefits seen for railroads.** Between now and the time the car goes into operation the state hopes to have an opportunity to explain to railroad representatives the goals and objectives behind its acquisition of the track geometry car, and jointly to formulate a usage program. The state regards the car as an additional inspection tool with definite advantages for the railroads. For one thing, says Heitmann, it will provide the railroads with a record of the track geometry on lines over which track-measuring cars are not now operated. Second, the car will be a source of "hard, objective information that will assist the railroads in establishing maintenance priorities."

The state has plans for using the car to help guide the expenditure of state and Federal funds earmarked for track rehabilitation. These funds include $3 million of state money that has been made available for upgrading branch-line trackage within the state. Also, it is expected that Federal funds for track maintenance will be forthcoming.

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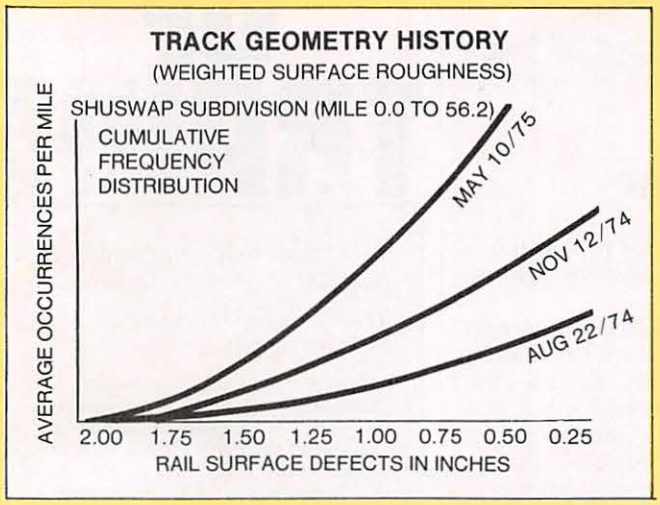
CP Rail projects new uses for track

Even before the track geometry car has become fully accepted on railroads generally, it is already being considered for new and broader applications on at least some roads that have had experience with it.

The Canadian Pacific is one of those roads. CP Rail has been operating a track geometry car on its lines for about three years. During this period the car has been used mostly as a tool for the guidance of field supervision. Now, however, it is being groomed as a tool for the use of middle and upper management. In addition, some ideas for the future use of the car are in the process of being hatched.

These developments came out in an address delivered by R. W. Holt, director, road maintenance management systems, CP Rail, before the annual technical conference at Chicago last month of the American Railway Engineering Association. The address was made as part of a panel discussion of track geometry cars.



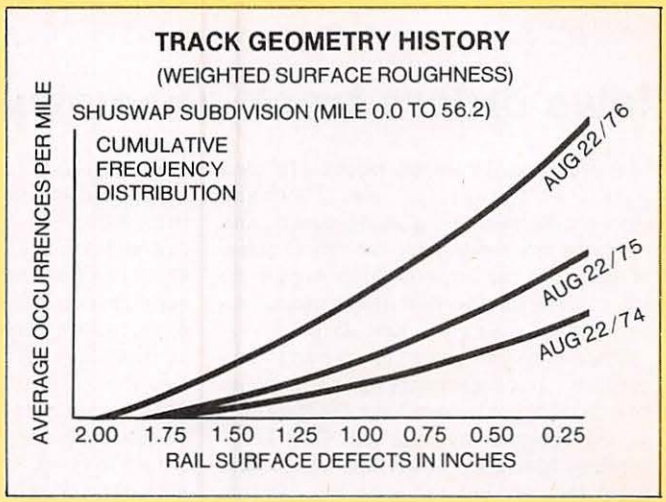
Charting deterioration of track condition

The graphs reproduced here represent one of three reports now under development for management use. They will be produced by the headquarters computer on a plotter. The charts, based entirely on fictitious data, show the relative condition of the rail profile for tests taken at three different times. The samples shown supposedly represent the conditions on the first 56.2 miles of CP Rail's Shuswap subdivision. The fact that the vertical scale is missing is "mainly because we have not decided on exactly what the scale will be," Holt explained. However, he expects the scale will show factors related to a reference stretch of 39-ft jointed track. The horizontal scale shows rail surface defects ranging from 1/4 inch to 2 inches.

"As a general rule," said Holt, "the lower the line is on the graph, the better the surface roughness condition. Furthermore, the more the line 'stays away' from that left-hand side of the graph, the less the incidence of potentially unsafe conditions. For the purposes of illustration, the graph above shows a very marked deterioration of track between August 22, 1974, when the condition was relatively good, to May 10, 1975, when the track is in very serious need of maintenance.

"This graph will be produced separately for each of the measurements taken by the track geometry car. It is intended for medium-range planning by middle managers. I say 'medium range' because there is one element of data which affects the deterioration of track as it is displayed here, and that is the time of year the tests are taken. On our sample here the May 10 line represents a test at the height of our spring thaw, and any attempt to project the rate of deterioration here over a long period of time would lead to false conclusions. For such long-range projections, we need to compare track conditions taken over several years at approximately the same time of year.

"The graph below is identical to the one above, except that the tests were taken at the same time of year. We now have information that may be projected over a longer period of time, as we are comparing apples to apples, so to speak."



SUBDIVISION TRACK RATINGS

	SURFACE ROUGHNESS	GAUGE	CROSS LEVEL	ALIGN	SUPER ELEV	WEIGHTED TRK CONDITION MAR 1/75	MAR 1/74	5-YR AVE
McADAM	56	22	44	8.9	10.3	278	224	235
ADIRONDACK	38	19	29	4.6	8.2	261	195	204
THREE RIVERS	43	15	35	6.3	8.1	235	189	199
BELLEVILLE	71	26	42	10.8	17.6	324	278	291
GALT	69	21	37	7.5	14.9	286	250	267
CARTIER	82	28	52	11.1	18.9	332	311	323
IGNACE	75	23	48	10.0	15.5	309	287	298
CARBERRY	54	17	31	7.9	12.8	273	242	252
INDIAN HEAD	37	11	20	4.4	7.4	221	169	186
LEDUC	36	18	27	3.9	8.0	258	179	189
MOUNTAIN	83	24	43	11.2	18.7	337	289	309
CASCADE	39	21	30	4.2	8.4	264	183	195

Track condition index for use by senior management

In his explanation of this table, which represents another report being developed for management use, Holt reminded his audience that so far he had stressed that attempts were made to keep meaningful the elements of information derived from the car. He also noted that he had not previously combined the various measurements. "With this illustration, however, I am about to break both of these rules," he said.

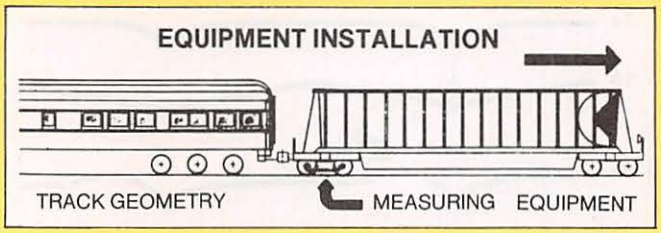
"Here we shall calculate a relative index number to show the over-all condition of surface roughness, gauge, etc., on each subdivision. We shall then apply weighting factors to each of these conditions, and develop an over-all track condition figure for the subdivision. This figure is shown for the current year, the previous year, and as a five-year average.

"I would not be honest with you if I did not tell you that I am somewhat cautious of this type of information. I do not feel that

geometry car

• **Tool for field supervision.** Holt first explained how CP Rail had used its track geometry car during the first three years of its existence. "For this period of time," he said, "our system staff has emphasized the field use of the car, and most of the development work in terms of reports and procedures has been geared to use by roadmasters and division engineers. To this end we have been successful and find that the car and the resulting reports are well accepted by line management."

This success, Holt feels, is due in part to the policy of providing information "that has actual meaning to lower management levels, such as the roadmaster." As an example of this policy he cited the practice of indicating measurements, such as low joints, in inches, rather than in the form of "an arbitrary statistical index number indicating the relative conditions...This policy, coupled with our philosophy that the primary purpose of the car is to assist the roadmaster and division engineer, has meaningful conclusions can be made from information summarized to this extent. This report will be used only by senior management, and it should be considered a barometer which indicates problem areas. As such, this report is a reference only, and should trigger a further request for more detailed information."



Measuring track conditions under different cars

This illustration displays an idea that is presently being considered for future development in the use of the track geometry car. The idea, Holt explained, is based on the fact that it is possible to remove the measurement devices from the trucks of the track geometry car and install them on the trucks of another car. Cables can then be extended back to the various electronic equipment in the track geometry car.

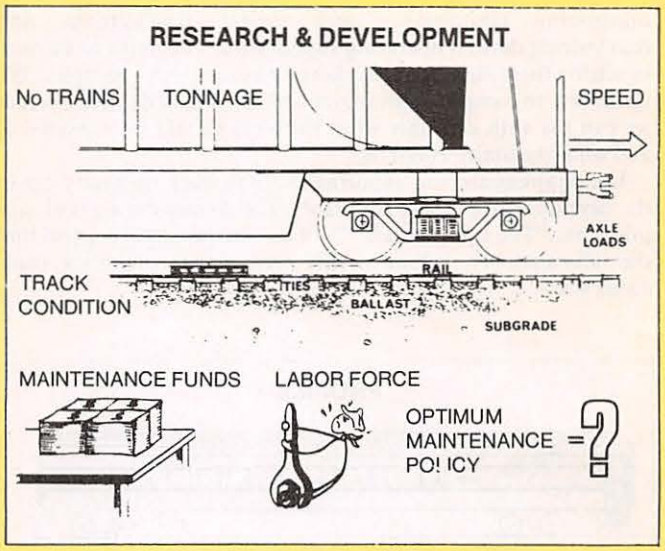
"The idea," said Holt, "is to measure track conditions under a different loading pattern, such as the 100-ton coal car shown in the drawing. Certainly one would not expect the track to react the same under this 132-gross-ton, 4-axle car as it does under the 125-gross-ton, 6-axle track geometry car, with its special suspension. If one wanted a true picture, for instance, on the effect on track of running unit coal trains, it might be interesting to measure a section under a standard box car, and then re-run the same section of track under the heavy coal car. We estimate two to three days time to set up each such special test, and hope to attempt it some time in the future."

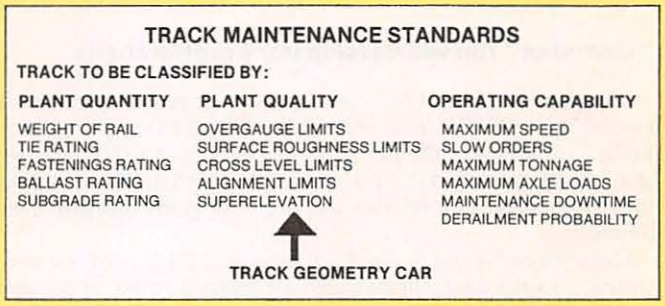
Developing an over-all information system

Holt stated that on CP Rail he is personally involved with a group called road maintenance management systems. The primary objective of this group, he explained, is to develop an over-all information system for road maintenance management. Once this system has been created the group would supply management support in analyzing the data collected. As shown by this illustration the system will include a full inventory of the roadway, such as rail, ties, ballast and subgrade. Also included will be operating information, such as numbers of trains, gross tonnages, axle loadings, and train speeds.

Keeping the operating information current is relatively simple, Holt said, because the information is already available through accounting and transportation sources. "Creating the initial track inventory is also simple conceptually, although very time consuming," he explained. "Such an inventory, however, must also reflect the condition of the track, as well as the physical components which make up the track. It is in this area that the track geometry car will be used to constantly update the inventory on track condition.

"All of this data, along with the resources available in terms of money and labor, must be analyzed in order to make meaningful maintenance-of-way decisions. What we have in this drawing is a system, and to analyze that system we must consider all of its components together. The result of these analyses should be improved maintenance-of-way policies."





The track geometry car and track standards

One of the objectives of CP Rail's road maintenance management system is to set up track maintenance standards, Holt explained. This term means "something quite distinct from track safety standards," he added. "In developing maintenance standards, we are looking for an efficient trade-off between

brought us to the point today where we feel the car is operating successfully as a field management tool."

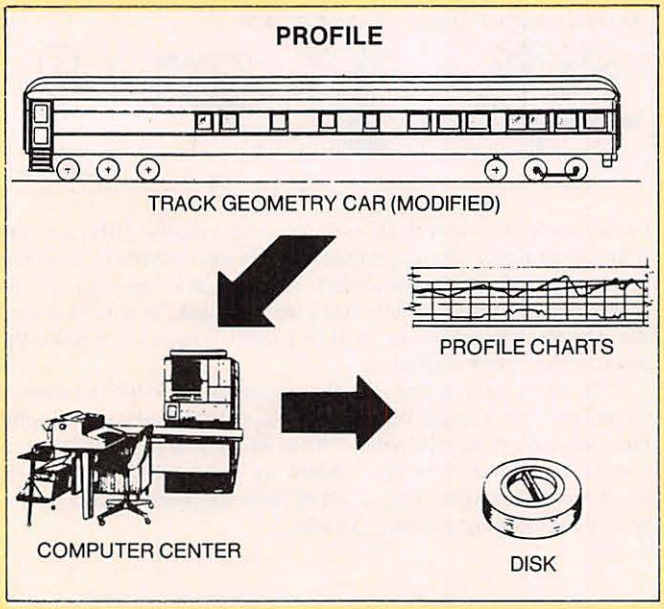
• **Possible uses by higher management.** With their confidence bolstered by this success, systems officers on CP Rail are giving thought to possible uses by higher management of information developed by the track geometry car. "We are currently working on development of several new reports intended to complement medium to long-range planning," Holt said. Beyond these proposed reports, he explained, some entirely new ideas in the use of the track geometry car are under consideration.

In his talk Holt described two new reports that are presently under development and five ideas for the future use of the car. In all cases slides were used to illustrate the reports or ideas. The slides are reproduced here along with Holt's explanation of the purpose or meaning of the report or idea.

Holt concluded that, in his opinion, "the potential for track geometry cars is almost limitless for engineering management. Although I have not done the calculations, I believe you would find the rate of return unbelieveably high for the investment in the car. I further believe track geometry cars, and similar management tools, will prove, in the future, to be as revolutionary to maintenance-of-way management as the business computer has been to others."

minimizing maintenance and capital expenditures, and maximizing desired operating capabilities. The items to be used in setting these standards, as shown here, are only examples. We shall have to complete our analysis of the system depicted before we can say with certainty what elements should be considered, and what the limits would be."

Holt emphasized the importance of the track geometry car in the development of these standards, and in monitoring their application. "The car," he said, "will be indispensable in providing the information on plant quality necessary to make the standards work."

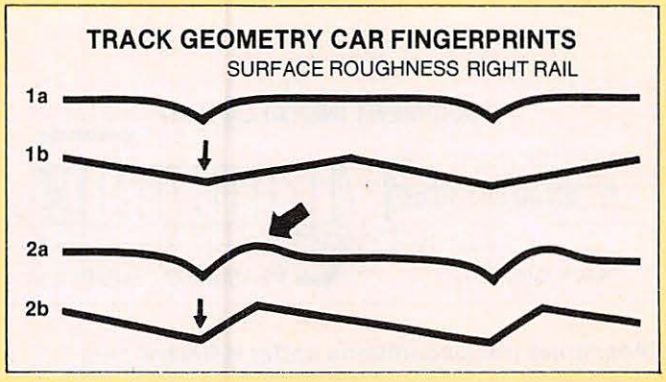


"One-shot" run will develop track profile charts

The plan of CP Rail is to modify its track geometry car for a special "one-shot" run to measure grade and curvature. "Actually," says Holt, "the car measures curvature today, and we shall shortly be undertaking a study with Canadian National into the development of a reliable and accurate grade measurement device."

Once the entire system has been measured for grades and curvature, all such data will be stored on magnetic tape on the car, and transferred to the headquarters computer, where the data will be automatically stored on computer disk as part of the track inventory.

By means of a plotter connected to the computer an entire set of profile charts will be produced to replace existing charts. "The final result," said Holt, "will be a partial re-survey of the railway using the track geometry car, at a cost that must be considered negligible when compared to conventional surveying costs." The process of developing the profile charts is represented by this illustration.



Can track defects be 'fingerprinted'?

Another idea that Holt and his associates are working on is displayed by this illustration. Line 1a shows the type of signal the track geometry car produces for surface roughness. The two "dips" in the line are rail joints. The computer on the car monitors this signal, and locates the high and low points on the line, as shown by line 1b. This line, Holt explains, isolates the low spot at the arrow, which is the joint, and the high spot on either side. These points are used in calculating the actual drop in the joint.

"What I wish to impress on you here," said Holt, "is how much the data are summarized; we started with line 1a as a continuous signal, which possesses an infinite number of points defining its actual shape, and we ended up with line 1b, where we have summarized the level of detail to defining, on the average, only two points per rail length. One cannot help but wonder if any use could have been made from all the data we have ignored.

"Let us now consider the surface roughness signal represented by line 2a. Again we have reduced this signal on the car to a series of high and low points, as in line 2b. You will readily notice, however, that the two signals 1a and 2a are not the same shape, because of the 'bump' on 2a at the arrow. This fact will be considered indirectly by the electronics in that, because of this 'bump,' the drop in the joints on 2b will be calculated as being greater than the joint on 1b.

"I would like to pose the following question: Does the actual shape of the signal have any meaning? I think the answer is 'yes.' Studies carried out by Canadian National indicate that the 'bump' in the signal 2a is the result of a bent rail end. We consider that it will be possible to isolate many such actual track or rail defects by studying the resultant signal. The concept is that each defect will have a 'fingerprint,' so to speak, on the resultant electronic signals."

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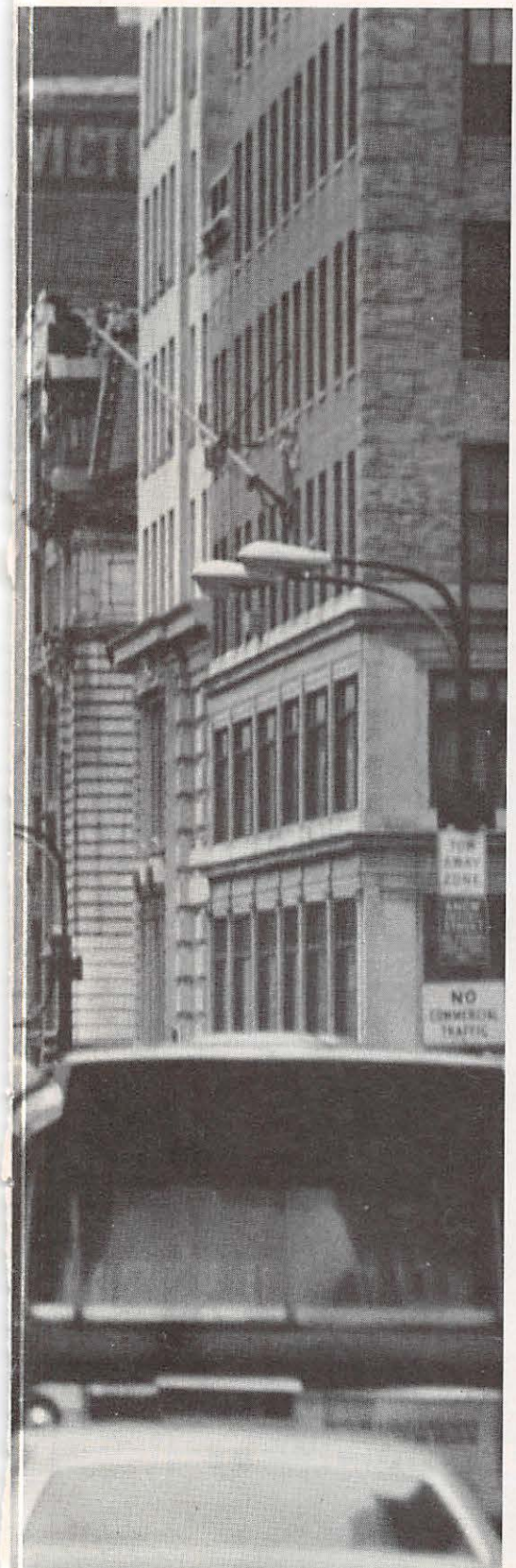

Half a block, half a block, half a block onward. . . into a valley of jammed streets, choked parking lots, struggling towaway trucks and poisoned air crawled the commuter brigade

Does this picture of frustration at the left mean "Someone had blundered?" If so, who?

Not the driver. Automobiles had promised him the freedom to go anywhere, anytime. No one can blame him for trying.

Not the manufacturer. He's built the cars people wanted. In fantastic numbers.

Not the roadbuilder. How could he know that traffic would catch up with him by the time the pavement was dry?

What all of us had to learn the hard way was that our proliferating automobiles—so wonderful out in the wide open spaces—were going to prove incompressible if we attempted the impossible dream of squeezing them all into downtown.

Fortunately there's a commonsense solution that will save us yet from all our brainy efforts to make the unworkable work.

Some of our best brains are now struggling to develop guidance systems for cars, trucks, buses. . .

Guiding trolleys? Buried electronic guidelines? *Guided movement is built into rail transit with the rails it rides on.*

Other best brains seek to unglut the approaches to downtown. . .

Car pools? *The rail transit train is the biggest car pool ever invented.*

Wider avenues? *A single track of a double-track rail transit system can carry the estimated load of a 20-lane avenue, if you can imagine anyone ever building such a monster.*

Safety? Controls to keep a stream of autos, trucks and buses the right distance apart? *The coupled cars of a rail transit train can't crash into each other.*

Greater efficiency? There are, say, 100 drivers operating the cars and buses carrying passengers in the section of city at the left. *One "driver" can operate a rail transit train carrying vastly more passengers.*

Greater economy? Some way to avoid the astronomical cost of repairs and maintenance, tire replacement, gasoline, garage, parking, tolls, etc., involved in auto commuting? *Rail transit costs but a fraction of this.*

Less pollution? Some way to detoxicate the automobile—whose breath can kill you in a closed garage? *Rail transit runs on electricity, not gasoline.*

So where does that put all us commuters? If it's a case of. . .

> Ours not to make reply,
> Ours not to reason why,
> Ours but to do and die

. . .then our future in the clutches of the auto-oil-cement lobby looks dismal indeed.

If, on the other hand, we ever do reason why, there's always that logical rail transit way to end the bumper-to-bumper agony of the commuter brigade.

—George Dusenbury

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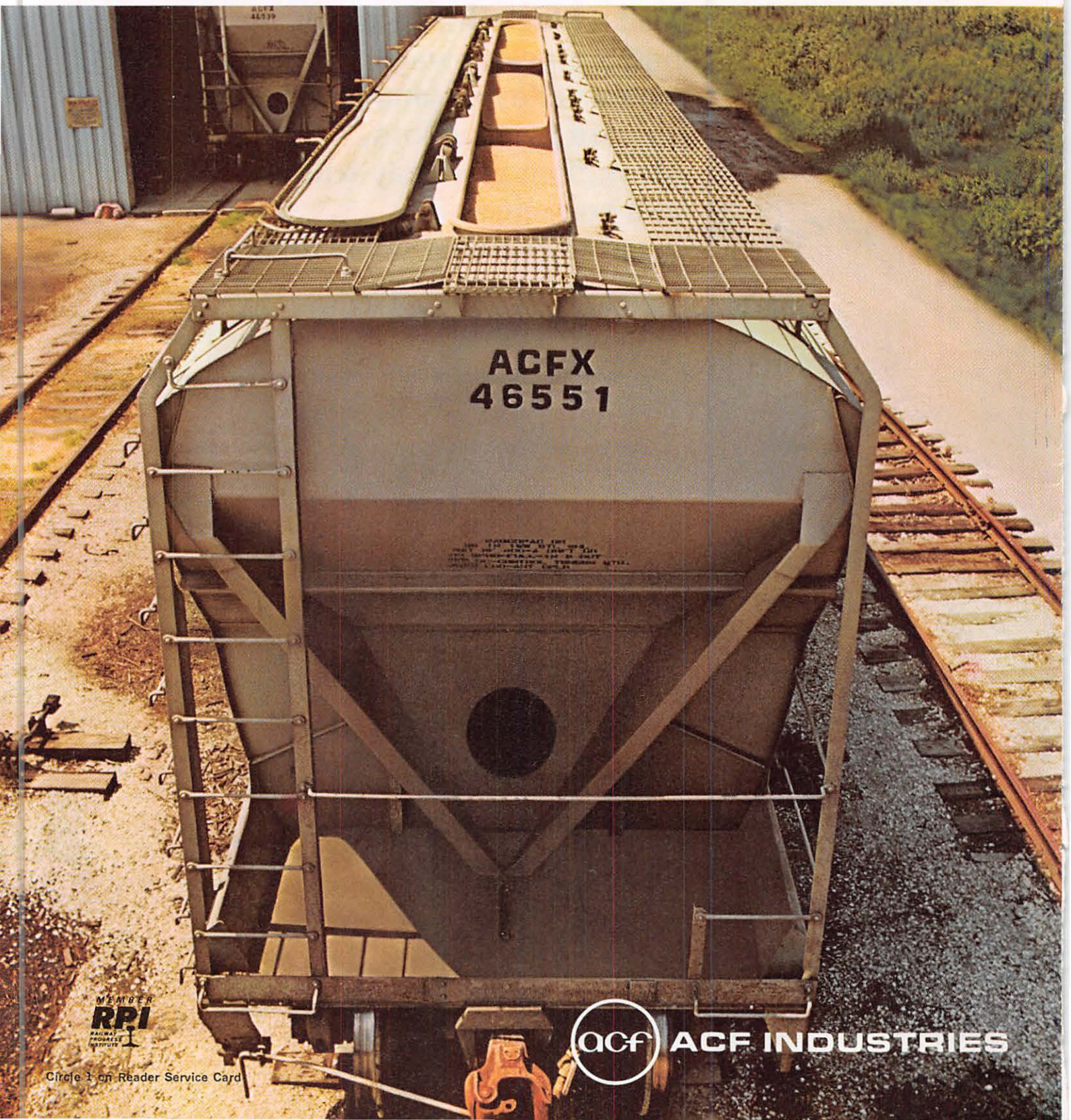

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Transit: Planning vs anti-planning

By JOE ASHER

What can American transit men learn from Europe? A certain amount in the technical area. But a great deal more in an area of vital importance that gets neglected: Planning.

The term planning is so general and so bandied about that we tend to forget what it means. It means deciding the future. If a city or a metropolitan region has a clear idea of where it is, where it is going, what are the logical steps to get there, and then carries them out, *that* is planning.

But if a host of isolated projects are set in motion by dozens of individual agents or agencies, with no consideration for how these projects affect each other, and no real weighing of their remoter effects on each other, you have anti-planning, a vacuum.

● **The European pattern.** Look at the European experience. Regardless of the political orientations of governments in western and eastern Europe, planning follows one prevailing pattern. It is conducted by a professional, non-political, unit and is responsible to either a municipal or a metropolitan government. If the city is a major one, it is usually the latter. The planners coordinate their activities to some extent with the national governments on road, rail, and air access to their own cities, but they make the key decisions on population density, deployment of that density, land use, modal splits, and not least, the pace at which the changes will come.

Below these planning agencies are other agencies that refine and carry out those decisions on the engineering and operating level, i.e., such things as local road departments and transit systems. The latter bodies have all sorts of natural aspirations—more roads, more transit lines—but they don't have the political weight to override the local planning body's wishes easily.

Now look at U.S. planning activities. We have regional planning councils that are generally forums for vacuous opinion, not coordinators. We have municipal or metropolitan planning commissions that devote the major portion of their effort to inventorying resources, not planning. They're lucky if they even have some advisory power. Then there are hosts of local agencies, all jockeying for their own pet projects. Depending on their influence with city councils and state legislatures, *their* plans get carried out—if they can be called plans.

● **The penalty for bigness.** The kind of setup we have here has a number of unpleasant consequences. The first is that everything big takes far too long to accomplish. For example, Greater New York has 1,400 separate units of government; other major U.S. cities have hundreds of them. Any minor project has to clear half a dozen of these units or their agencies. Any really big project, like building a major new transit line, will probably have to clear many dozens of them, if not more.

This always means an extra year or so to get anything important built. If a completely new system is involved, it may set the whole construction process back five to ten years, as happened in the case of the BART system.

Second, the costing of projects never turns out right. The sum that was adequate when the various reviewing bodies started their reviewing turns out not to be adequate at all, when the time comes to dig. BART, again, is an example. So is New York's Second Avenue subway, which the voters authorized twice, but has no prospect of seeing the light before 1990.

Third, the dispersion of the decision-making promotes grand-standing and empire-building. A highway agency has its favorite road project, a transit agency its favorite rail project. The coordination between the two, to the extent that it takes place, is a function of comparative clout, of available dollars to each, and of short-term "prestige" as perceived by local political leaders looking for visible results when election time comes around.

In that kind of atmosphere, transit is generally at a disadvantage. Transit men don't dispose of the bucks that highway men do and it takes years on any new project to show sexy results. With this sort of setup, transit almost inevitably gets short-changed.

Fourth, it makes the planning process more vulnerable to political corruption. It would be wrong to say that we have a monopoly in this country on municipal corruption and Europe is free of it. That is not the case.

● **Decisions on the merits.** But it is the case that Europe is relatively free of it. And European planners say the same things in private that they do in public, namely that the decisions on land-use and modal splits are made on the merits. That this has resulted in a tidal wave of new transit-building says something for that kind of decision-making.

Our planners are different—and of course the amount of new transit building we have is far less. In public, our planners tend to talk forever about the resources they are inventorying. In private, they often admit that highway dollars are easier to come by than transit dollars, and therefore a modal decision gets made according to the line of least resistance, not merit.

Furthermore, they also tend to talk plenty in private of the need to placate this city councilman, that state senator, and of course local real estate interests and bankers, on routing decisions. And seemingly by coincidence, the lines on the map no longer go quite where they went after the traffic counts got taken. But somehow, this gets called planning.

Corruption is something that is never discussed in the planning textbooks, and we had better face up to the fact of it.

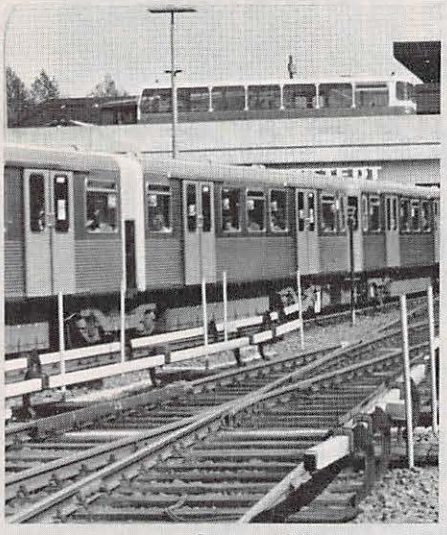
Any attempt to give planners more power and to move decision-making upward is bound to be met with an obvious retort which goes like this: We have a democratic form of government here. People have a right to be consulted about projects that will affect their lives. And local units of government are closest to the people.

True, all true. But we had better face some other facts, as well. Some great cities of the world were planned and built by the likes of Emperor Augustus (Rome), Baron Haussmann (Paris), and Peter the Great (Leningrad). The designs that stand the test of centuries are not going to be conceived by the Real Estate Board of Upper Middletown, or the Concerned Housewives of South Anywhere.

● **The need for professionalism.** In a word, planning is a professional skill. It deserves more insulation from powerful and/or noisy locals, and it functions best when subjected to thorough review, not just layers and layers of superficial review.

To be sure, we need safeguards against would-be planning czars—men-on-horseback types, such as Robert Moses, who didn't believe in consulting anybody any time.

But that was one extreme, and we have suffered too long from the other extreme. We need to find some happy medium—and the place to look for it is at the planning bodies that are plotting the futures of the major European cities.



Railway Age Photo/Maurice Mates

HAMBURG, where public transportation is totally integrated, exemplifies European transit planning at its best. Billstedt station, above, is one of several where trains and buses meet and exchange passengers.

Joe Asher, former transit editor of Railway Age, is now an associate editor of Banking magazine. This article is excerpted from a talk he gave recently at the School of Architecture and Urban Planning, Princeton University.

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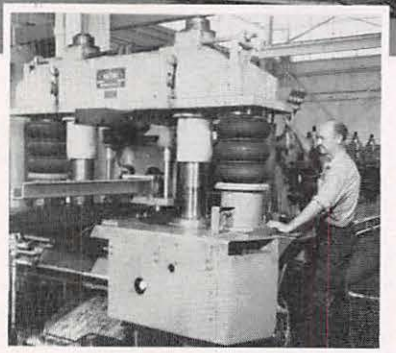

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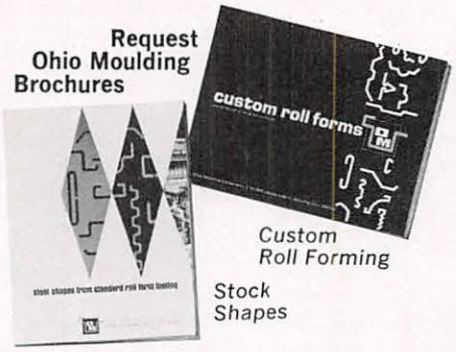

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Priorities

By KENNETH ELLSWORTH
Mechanical Editor

The mindless, excessive use of four-letter words which assailed us from so many quarters during the past decade may be yielding to the urgency of a ten-letter word which speaks of marshalling intelligence and fortitude to solve some tough problems.

Priorities is the word. The process it evokes in this instance, is the examination of goals in terms of their ascendancy rating on a scale of things to be done with monies available. It is beginning to show itself in government, the private lives of citizens and in the business world. The Federal government, it seems, is weighing whether its posture as world-saviour isn't over-bent, and should be straightened up to allow a more even-handed dealing with matters in disarray at home.

And, judging from the sales of autos and appliances, the individual citizen is rearranging his priorities all over the lot.

The rearrangement of priorities isn't always prompted by high principles. Last December, Congress decided that what the nation needs is bigger trucks. Like doubling the haul up to 80,000 tons permissible over interstate systems and onto Main Street. Allegedly, the Truck Operators Nonpartisan Committee hurriedly anted up attractive campaign contributions to members of both parties.

Now, as the family car becomes smaller, the prospect of being passed in a rain storm by one or more of these monsters (they often run convoy-style) at 70 mph is nothing short of terrorizing, windshield wipers would be overloaded with spray and gook beyond clearance capabilities. The mind would be in frantic recall as to whether the road ahead last seen was straight or curving. And to slow down would be to invite a collision from a car in the rear whose driver would also be struggling with temporarily impaired vision.

So the truckers pay their taxes. But they don't have their crews out repairing damage done by their trucks in chewing up roads in the states, counties and municipalities where they operate.

The railroads pay taxes on fuel and freight, plus state, county and municipal taxes on their operating right of way. And their payrolls must carry maintenance of way personnel.

This misdirected "priority" legislation is now being reviewed by Congress. Whether or not a person is employed by a railroad, anyone concerned with highway safety should let his Congressman and Senator know that this kind of privileged legislation rates a zero as a public interest priority.

Labor/management: Solving problems

(Continued from page 18)

that did not follow its real objective or the purpose for which it was founded. It seemed that within RLEA something was happening that was tending to take away the autonomy of the individual organization. But that's not what RLEA was formed for, and it's not the way RLEA will operate now. RLEA will be a strong voice for rail labor on matters of common interest, but we will never allow ourselves to get in a position of trying to interfere with a union's autonomy.

Q. How about RLEA as a voice supporting rail management on issues of common interest?

A. I don't know that you would want to tie RLEA too much to this kind of thing. I think the committee of chief executives of labor and management is a better forum or organization for doing this. But, RLEA will certainly be a voice that will reflect what's agreed upon in that committee. I look for great things from rail labor now, I really do.

Q. Great things, how?

A. In trying to help to put this industry back up where it was years ago, as No. 1 in transportation.

Q. That has to imply that you're going to be active in Congress and elsewhere in Washington. . .

A. Absolutely.

Q. Working on mutual-benefit programs?

A. Right. General Electric, I believe, has an ad slogan "Progress is our most important product." Well, that slogan sure hasn't applied to the railroad industry in the past. However, I'm optimistic that despite all the problems facing the industry today, in the near future we'll be able to look back and confidently say that progress was made and will continue to be made. Of course, today we're in the midst of a severe economic crisis and we read about how many people are unemployed in the auto industry and about other layoffs and about how terrible it is. Well, make no mistake, unemployment in any industry is a serious matter. But I can't help but relate the current unemployment in other industries to what has taken place in the railroad industry. As we all know full well, railroads are down to a little more than a half-million people today—while 20 years ago we had twice as many. And during those past years when the railroad industry was deteriorating and railroad employment was declining, I can't recall anybody expressing concern over the railroad problem or the railroad unemployment problem. They were ready to write us off as a dying industry. Now? Well, now things are a little different. Now, everyone recognizes that the national economy, for many reasons, needs our industry. The rail system will be rebuilt. Railroad employment will be back up where it belongs.

Q. But what about the money to build, to employ?

A. That's the hairy question. Sure, railroads want to stay away from nationalization, to stay in private ownership, and OK. But things are going to have to change. We know that railroads have to have some help. They've been over-regulated. They've had to pay the full load in taxes. They've had to pay for full maintenance of the property, while other forms of transportation have been substantially subsidized by public money. Take, for instance, just a little item like a road crossing. Few communities have ever paid a cent for maintaining, repairing, crossings. But the crossing isn't there for the benefit of the railroad, it's there for the benefit of the community, and you can't touch a decent repair job for much under $10,000, and it isn't fair. Local communities, states and the Federal government have to put money into the industry. They've been subsidizing everybody else, and it's time they subsidized the railroad industry. Take the branchline problem, for one other example. Sure, what might be a light-density line today could be a heavy-traffic line tomorrow if a major industry locates on it. But who can say? And if that line is going to be maintained with light density of traffic, if service is going to be maintained, somebody is going to have to pay for it.

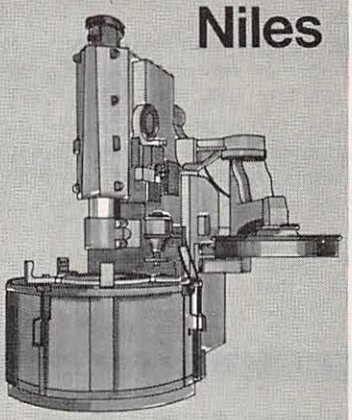
Q. How do you look at the United States Railway Association and ConRail, at least now?

A. Arthur Lewis [chairman of USRA] has talked with the labor organizations, and I'm impressed with his candidness. He's said "Come on over, let's get a dialog going." I think he's sincerely trying to do a job, and it's a tough job.

Q. How about your own outlook, as president of BRS and as an individual?

A. First, BRS has not suffered the membership decline that some organizations have. We were at about 17,500 in the early 1950s and we're at more than 13,000 now. When the work that has to be done on signal and communication systems starts being done, we're going to be right back up there. As for the way I feel, I'm optimistic. RLEA has been strengthened by the reunification April 1, and we've been able to work things out with railroad management without the problems we used to have. The past six months have been the best six months, I think, in my entire railroad labor career. And I have no pessimism about the future, because we have proved—labor people and labor/management people—that we can get things done. ■

Simmons-Niles



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LETTERS

Change for change's sake?

Willow Grove, Pa.

To the Editor:

Your discussion with Mr. Frank Herringer on the problems of passenger car builders (RA, Jan. 13, p. 17) emphasized two reasons for lack of profits: inflation and complexity of design. My comments are about complexity of design as I have observed it over many years in dealing with rail passenger cars.

Providing a comfortable ride, at a safe speed, that satisfies most of the passengers, should be the number one design priority.

Why try to improve design B over design A, if design A has met the requirements of passenger comfort and safety?

What is wrong with reproducing (with tested improvements) a satisfactory design?

Why change the state of the art when it has a good track record?

Why use a micrometer, where only a yardstick accuracy is required?

Why specify, for hundreds of cars, techniques that have not been time tested in passenger service?

Can our economy *afford* the cost of expensive design changes, made to produce a minor improvement in passenger comfort?

I have seen many innovations made inoperative by maintenance personnel.

When does change become more important than first costs and operating costs?

T.J. Kenny
President
Ogontz Controls Co.

USRA's master plan

Washington, D.C.

To the Editor:

My deepest thanks for the in-depth story, editorial, and the column on the announcement of our "Preliminary System Plan" you did in the March 10 issue of Railway Age. You did your usual, thorough analysis of what was necessarily a lengthy and sometimes complex document, translating it into words and terms readily understandable. The map of the system in color was an eye-catcher.

And my special thanks too for picking up and printing my comments at the press conference on the double standard concerning those "other subsidized private-enterprise carriers" on the one hand and "the until now unsubsidized railroads on the other." I did not see mention of that important point in any of the other publications who covered us.

Arthur D. Lewis
Chairman
United States Railway Association

Barstow Yard

Battle Creek, Mich.

To the Editor:

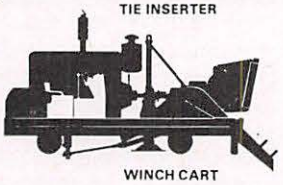
I enjoyed the article on Barstow Yard in your Feb. 24, 1975 issue. It would be interesting to me to know how many people studied the mini-hump procedure to the extent of noticing one of the block of eleven cars was lost during switching. Better luck next time.

H. J. Keel
Transportation Superintendent
Grand Trunk Western Railroad Co.

LORAM

Modern Maintenance of Way Equipment with an **established track record...**

TIE INSERTER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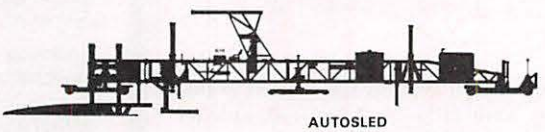
SHOULDER BALLAST CLEANER

...designed to do the job easier, quicker and at less cost — with your men or ours!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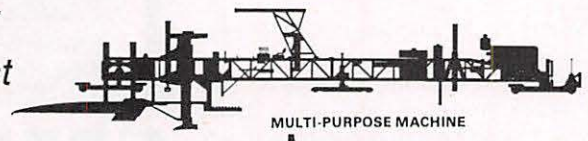
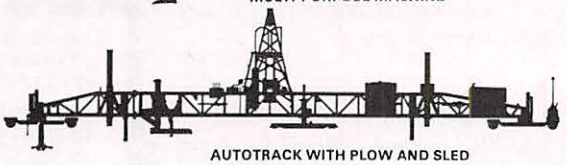

MULTI-PURPOSE MACHINE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Calendar

The 1975 **Design Engineering Conference**—sponsored by the Design Engineering Division of the American Society of Mechanical Engineers—will be held in the Americana Hotel, New York, April 21-24.

The **American Railway Development Association** will meet in the Sheraton-Chicago Hotel May 4-7, not April 27-30 as earlier reported in this department (RA, Feb. 24, p. 36).

The **National Conference on Surface Freight Transportation** will be held April 22-23 at the International Inn, Washington, D.C. Chairman of the conference will be Alan S. Boyd, president, Illinois Central Industries.

Building a rapid transit system is an enormous and challenging job

It takes all kinds of specialized skills
and knowledge — such as ours
. . . which involve the battery and
battery charging system for the cars'
stand-by and auxiliary equipment operation.

This is our field of technical expertise and experience.

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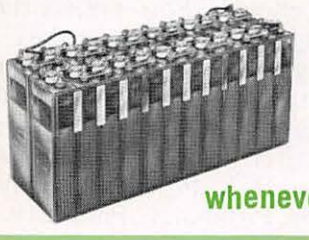
has made us the leading supplier
of this type of equipment to the U. S. transit industry.



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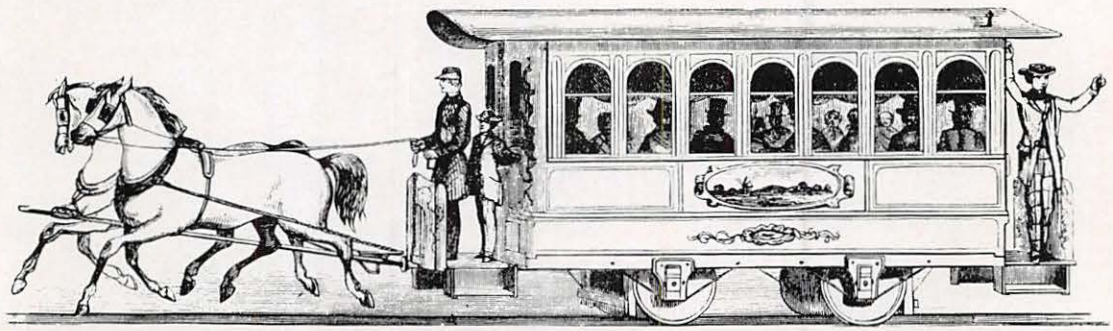
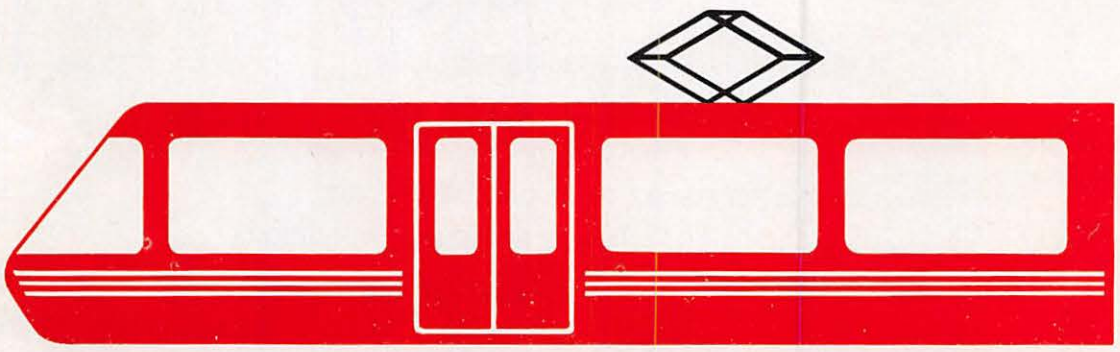


Horsepower transit



Porter powers transit

The transit industry has progressed considerably since the days of horsepower transit. The transit technology and skills being employed today are accelerating rapidly and the immediate future will see more advances in the art of mass transit than was achieved since the early days of the transit industry.

For years Porter has been serving the transportation industry. We have been involved in the development of many new products used for powering transit systems. Porter, in addition, has acquired considerable knowledge through research and development leading to the introduction of totally new transit power concepts. Porter offers the knowledge, experience and skill to help meet the challenges encountered in today's fast changing transit technology.

Whether it's concepts or product selection, Porter engineers are readily available for assistance in electrifying your transit designs. Contact Electrical Division, H. K. Porter Company, Inc., Porter Building, Pittsburgh, Pa. 15219.

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Porter Electrical Division supplies Electric Utilities, Transit and General Industry with Switches, Isolating Circuit Breakers, Substations, Bus and Metalclad Products, Cable Accessories, Pole, Pad and Station Type Transformers, Current Collecting Systems and Components, Transductor, Metal Trim, Fans, Blowers and Special Motors.

Circle 20 on Reader Service Card

People

AUTO-TRAIN.—Richard H. Tolbert has resigned as executive vice president. A successor was not immediately announced.

BESSEMER & LAKE ERIE.—James Glenn Leonardo, coal sales representative, Pittsburgh, appointed to the new position of supervisor marketing—coal and ore. **Daniel J. Humphrey,** coal service representative, appointed coal sales representative, **Darrell E. Stanyard,** pricing analyst-general commodities, named senior pricing analyst.

BURLINGTON NORTHERN.—In the marketing department, **Robert B. Schmidt** appointed assistant vice president-regional sales manager, New York and **Edward J. Eddy** named sales manager, international trade-TOFC/COFC, Los Angeles, Mr. Schmidt succeeds **F.C. Reisse** and Mr. Eddy replaces **Brintnel R. Newlon,** both retired.

In the safety and rules division of the operations department, **Charles A. Bentley** named to the newly created position of director, training, safety and rules.

In the Twin Cities region, **R. J. Davis** named assistant superintendent, transportation, Grand Forks, N.D.; **C.F. Tye,** assistant superintendent, transportation, Minneapolis; **J. D. Gabiou,** manager road and terminal operations, Minneapolis; **G. D. Anderson,** trainmaster, Sioux City, Iowa; **M. G. Heyns,** terminal trainmaster, Minot, N.D.

William J. Condotta, terminal superintendent, Kansas City, Mo., named superintendent, Chicago division, to succeed **Glenn W. Saylor,** transferred to Alliance, Neb. **J. A. R. Draper,** terminal superintendent, Minot, N.D., succeeds Mr. Condotta.

Joseph D. Giallombardo named to the newly created position of assistant chief engineer design, St. Paul.

CANADIAN NATIONAL-GRAND TRUNK WESTERN-DULUTH, WINNIPEG & PACIFIC-CENTRAL VERMONT.—H. Pat Flynn named district sales manager, Seattle, to succeed the late **Roy R. Pugh.**

CANADIAN PACIFIC.—H.M. Romoff appointed assistant vice president-corporate development. In addition he will continue to serve as president, Canadian Pacific Consulting Services Ltd. and president of CanPac Waste Disposal Systems Limited. **Robert Klein** appointed manager, Department of Research, succeeding Mr. Romoff.

CHESSIE SYSTEM.—Franklyn J. Carr, manager of visual media and design, Cleveland, named director of visual media and design, public relations and advertising department.

CHICAGO & NORTH WESTERN.—James A. Zito, assistant general manager, appointed assistant chief engineer-maintenance.

Frederic W. Yocum, Jr., superintendent-intermodal operations, named assistant to the general manager.

CONNECTICUT DEPARTMENT OF TRANSPORTATION.—Samuel Kanell has been appointed Commissioner. Kanell previously served as Deputy Transportation Commissioner, Bureau of Rail and Motor Carrier Services, from 1969 to 1973, before becoming an ad-

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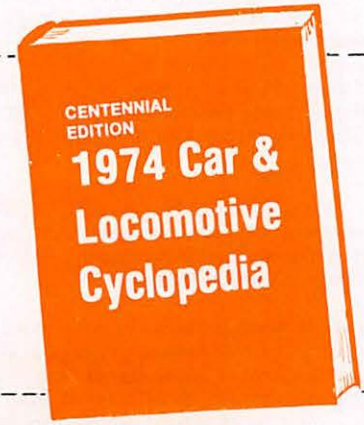

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ministrative law judge with the Federal Power Commission, Washington, D.C.

FRISCO.—T. M. Mabon named assistant vice president-industrial development, St. Louis. **W. R. Hessi** and **R. G. Weidner** appointed directors of industrial development, St. Louis.

LEHIGH VALLEY.—George W. Kaswinkel, purchasing agent, Bethlehem, Pa., appointed manager purchases-sales. The Purchasing & Sales Department is being reorganized and will now function as part of the Administrative Services Group which encompasses real estate, insurance, taxes, purchases-sales, personnel and publicity.

MILWAUKEE.—Bill H. Bobbitt, director of real estate, economic and resource development, Chicago, named assistant vice president of the real estate, economic and resource development department there.

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MISSOURI-KANSAS-TEXAS.—Ruby I. Hill appointed administrative assistant to vice president, Dallas. Mrs. Hill, formerly statistical supervisor in the office of vice president, Sales and Services Department, Dallas, succeeds **Don E. Lottes,** retired.

NATIONAL RAILWAYS OF MEXICO.—Jorge S. Guzman appointed executive representative, Washington, D. C., succeeding **F. T. (Pancho) Scanlan,** retired. Mr. Scanlan joined the Chicago agency of the NdeM in 1935 as a passenger representative. In 1942 he was transferred to Washington where he established a priority office in the Mexican Embassy to obtain export licenses for NdeM equipment purchased in the U.S. For the next decade, he was "on loan" to the U.S. government as transportation attache in the American Embassy in Mexico City, where his job was to expedite the movement of some 2,000 carloads of strategic materials exported monthly from Mexico to the U.S. He returned to Washington in 1952 to represent the NdeM.

NORFOLK & WESTERN.—D.E. Turney, Jr., regional engineer, Western Region, St. Louis, appointed engineer-maintenance of way, Roanoke, Va. **William P. Beesley,** regional engineer, Lake Region, Cleveland, succeeds Mr. Turney at St. Louis. **W.D. Lovell,** engineer-track, Cleveland, named regional engineer, Lake Region. **John T. Hiner,** assistant chief engineer-budgets-costs, Roanoke, appointed engineer-track, Cleveland , succeeding Mr. Lovell.

TRANSIT

John T. Doolittle, Jr., has joined **Simpson & Curtin,** transportation engineers, a division of **Booz, Allen & Hamilton,** with headquarters at Philadelphia. Mr. Doolittle was previously chairman of the board of directors, **Massachusetts Bay Transportation Authority** and Undersecretary of Transportation and Construction in Massachusetts.

Robert Evans, director of transportation, **Daniel, Mann, Johnson & Mendenhall,** Los Angeles, has been named an associate vice president.

Erland A. Tillman has joined the staff of Daniel, Mann, Johnson & Mendenhall in Baltimore as a senior executive and assistant project manager, Baltimore rapid transit program. He recently served as project general manager, Chicago Central Area Transit Project.

Allen L. Sams has been appointed a vice president, **DeLeuw, Cather & Co.** He was formerly vice president and chief engineer, **Illinois Central Gulf.**

Clifton Fenn, power director, **Port Authority Trans-Hudson,** retired Jan. 30, after 61 years with PATH and the Hudson & Manhattan.

J. Phillip Richley, former director, **Ohio Department of Transportation,** has joined **Dalton-Dalton-Little-Newport** as vice president of transportation.

Frank H. Waring has been named manager, Transportation Department, **Stone & Webster Management Consultants, Inc.** Since joining the company in 1971 Mr. Waring has been a director of special projects involving consultation for private companies and public agencies in transportation economics, planning, operations and maintenance.

Robert W. Nelson, formerly assistant general manager for finance and administration, **Metropolitan Atlanta Rapid Transit Authority,** named to the new position of deputy general manager with responsibility for the day-to-day administration of MARTA. **Morris J. Dillard,** formerly assistant general manager for staff services, named to the new position of assistant general manager for planning and public affairs. Both will report to **Alan F. Kiepper,** general manager.

SUPPLIERS

John C. Felten
Evans Products

Jack D. Polizzotto
Aeroquip

John C. Felten has been named executive vice president and a director, **Evans Products Co.** Mr. Felten is president of its Transportation Systems and Industrial Group and president of **U.S. Railway Mfg. Co.** Mr. Felten has been a vice president of the corporation and executive vice president and general manager of the group.

Jack D. Polizzotto has been promoted to general marketing manager, **Aeroquip Corp.,** Jackson, Mich. He will have marketing responsibility for Barco and Marman industrial products, and the recently acquired Gustin-Bacon products. Mr. Polizzotto will integrate the AMB industrial and Gustin-Bacon product lines.

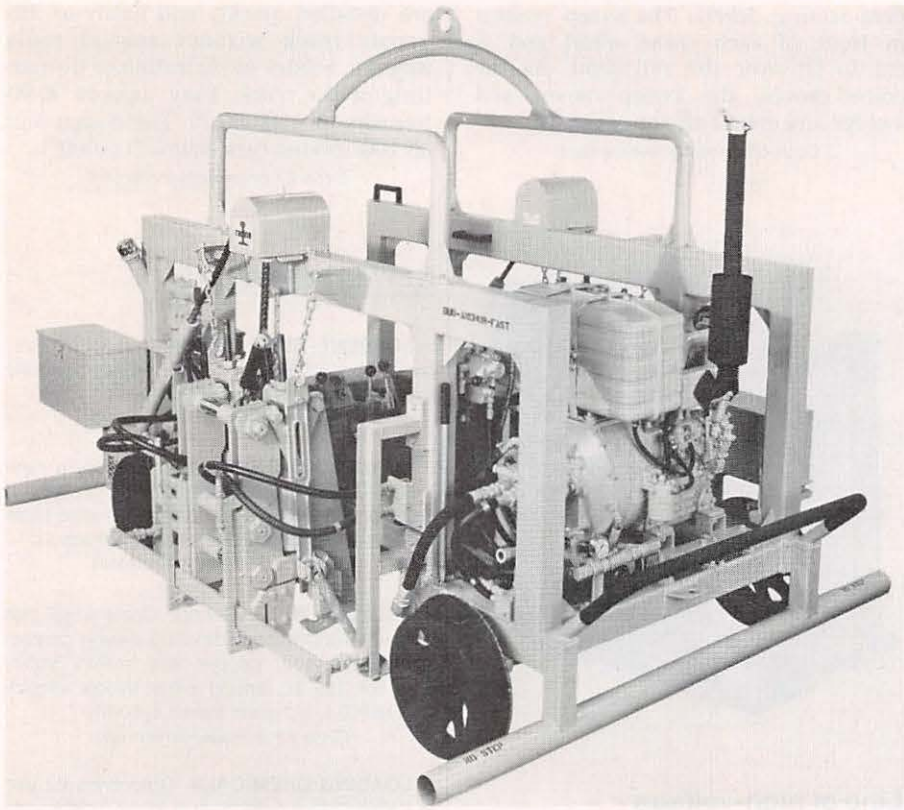
Edwin G. Vineall has been appointed manager of application engineering, **General Railway Signal Co.** Mr. Vineall has been serving as program field test manager on the Washington, D.C. Metro automated rapid transit project, where he directed GRS and subcontractors' personnel in the testing and placing in service of this system.

L.B. Foster Co. has announced it will build a $2 million, three-story corporate headquarters building in Green Tree, a suburb of Pittsburgh, Pa., with completion expected in the Spring of 1976.

Ira Thompson has been appointed general manager of the Lordstown, Ohio Division, **Transco Inc.** He was formerly supervisor of special equipment, **Chessie,** Grand Rapids, Mich.

Richard S. Jones, director of freight manufacturing, **Pullman-Standard Division** of **Pullman Incorporated,** has been named vice president of freight manufacturing.

Products Report



Less adjustment for work heads of anchor

A new, simplified work-head-guide arrangement has been incorporated in Racine's "Duo-Anchor-Fast" rail-anchor applicator which applies anchors on both rails at one time with one operator. The improvement allows the work heads to drop over the rails properly then both heads box the anchors tightly to the tie or tie plate with 3,000 lb of pressure before applying.

The upward travel of the work heads is controlled by limit switches to lessen the cycle time and increase production. These controls can be over-ridden with a push button to raise the heads fully for traveling. Circle 60 on reader service card

Rail detector car travels on rails or highways

The Model TTV-1 Ultrasonic Rail Detector car has been constructed by Krautkramer-Branson, Inc., on a Ford M 450 Motor Home chassis and is rated for a gross vehicle weight of 14,500 lb. It is a Hi-Rail type vehicle that is entirely self-supporting.

It incorporates a retractable Test Carriage that is housed within a lockable cabinet when not in use. This heavy-duty mechanism positions two wheel-type ultrasonic transducers, one on each rail, automatically following the track gauge. Provisions are made for adding a second wheel transducer for each rail to provide for a more sophisticated test system for welded rail. Centering and cant of the Wheel Probes on the rail are remotely controlled from within the vehicle.

Coupling of ultrasonic into the rail and of the returning echoes from the base and any defects that exist is accomplished by means of a fine high-pressure spray of water. A week's supply is carried by the car.

The sensitivity of the test system is adjustable and calibratable to insure consistent measurements of track defects. According to the manufacturer, it also is possible to adjust the defect detector circuits to distinguish between bolt holes that are sound and those that are cracked. The length of longitudinal cracks that will be recorded is also adjustable. Transverse fissures, detail and compound fractures and other flaws can be distinguished with adjustable sensitivities.

Circle 61 on reader service card

Portable tool extricates accident victims quickly

A portable tool designed to extricate collision accident victims within seconds and with no risk to the individual is being introduced in this country by TST-Trading NY Limited. The hydraulically operated implement consists of a metal-cutting device and a manually operated, high-pressure hydraulic pump. It is so compact that it takes about the same amount of space as a standard automobile tire jack. The device weighs only 28 1/2 lb;

little effort and no special training is required to operate it. The pump develops 13 tons of force on the specially designed scissors blades, making the scissors independent of outside energy sources. Since cutting assures that there are no sparks, the hazards of possible explosion and fire during rescue operations are eliminated. The device, called TST-Resource Scissors, has been in use elsewhere in the world by railroads, police and fire departments, among others.

Circle 62 on reader service card

Sun control film is made for application on acrylic plastic

A sun control film for application on acrylic plastic, designed to reduce significantly the effects of solar heat, glare and ultraviolet rays, has been introduced by 3M Co.'s Industrial Tape Division. Called Scotchtint Solar Control Film No. A-20, it is applicable to any acrylic installation: train and airplane windows, for example. The film is aluminum vapor coated polyester, featuring a patented, water applicable adhesive system. With a shading coefficient of .21, it will reduce 88% of the sun's heat transmission, 86% of the glare and 83% of the ultraviolet rays.

Circle 63 on reader service card

Portable track car has heavy-duty aluminum frame

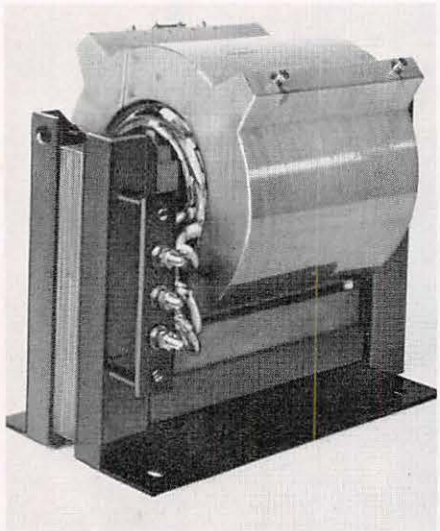
A portable, lightweight, all-purpose, four-wheel track car for use by maintenance of way and signal forces is available from Safetran Systems Corp. The car is composed of a heavy-duty aluminum welded frame capable of transporting up to 5,000 lb. The platform size is 52 1/2 by 47 inches. Car height is 7 1/2 in. above the rail. There are four wheels of cast aluminum with sealed and pre-lubricated roller bearings. Each wheel is fully insulated, thus preventing track shunting. The car disassembles into two easily handled sections; each weighs 78 lb and is easily carried from truck or bus to the rail location. After reassembly, a self-locking device hooks the sections together.

Circle 64 on reader service card

Low cost method of keeping crane rails free of debris

The W/W Crane Rail Sweep from W/W Engineering Co. is designed especially to provide a dependable, low cost way to keep crane rails free of accident-causing debris. The sweep mounts in front of each crane wheel and is cut to fit over the rail head. As the crane moves, the sweep moves and sweeps any debris off the rails.

Circle 65 on reader service card



Line of high-voltage transformers is offered

A line of Epoxycast high-voltage transformers for energizing, among other things, signaling and supervisory equipment for railroads and electric utility networks, is offered by TDC, a division of Frequency Technology, Inc. The transformers convert electrical power in the 2.4 kilovolt to 14.4 kilovolt range to the 120/240 volt level required by those applications. the entire line is built in accordance with ASA Standard C37.20-5.2.1. All units are designed to withstand high voltage transients on the input circuit without insulation breakdown, and are specified for BIL ratings of 60,000; 75,000; or 95,000 volts.

Circle 66 on reader service card

Bolster failure is reduced with new Car-Safe bolster supports

Car -Safe supports in most cases now eliminate bolster cracking and failure in the critical center plate area. Tests have demonstrated that Car-Safe supports, from R.W. Mac Co., reduce stresses by over 40% and provide longer life. They are installed quickly and easily at any repair track without special tools, welding, bolster modification or dismantling of the truck. They support 50-90-ton cars of 150,000 lb. The design load on 100-150-ton cars equals 300,000 lb.

Circle 67 on reader service card

NEW LITERATURE

SORBENT RUG. The Conwed Corp. Sorbent Rug is a non-woven fabric specially treated to absorb oil and resist water.

Circle 70 on reader service card

CONSTRUCTION TOOLS. Enerpac's new 1975 Construction Tool Catalog covers a complete range of labor-saving hydraulic tools for both general and electrical construction.

Circle 71 on reader service card

TROLLEY WIRE. General Cable Corp. has published a brochure detailing design characteristics of both copper and bronze trolley wire for use in, among other things, electrified railroad and mass transit systems.

Circle 72 on reader service card

LOADING CHEMICALS. Guidelines for use in training plant personnel in loading packaged chemicals into box cars have been issued by the Manufacturing Chemists Association. Price: $1.25. Quantity prices are available.

Circle 73 on reader service card

COMMON CHANNEL SIGNALING. A comprehensive 28-page booklet covering the 11A Common-Channel Signaling System is available from GTE Lenkurt, Inc.

Circle 74 on reader service card

ROTARY PUMP. A 16-page, illustrated rotary pump catalog has been released by Houdaille Industries' Viking Pump Division.

Circle 75 on reader service card

HOSE AND FITTINGS. Aeroquip Corp. has released a 220-page catalog covering the company's major fluid power components.

Circle 76 on reader service card

WHEEL/AXLE HANDLING. A colorful, illustrated brochure from J.W. Greer, Inc., describes an advanced, automated method of wheel and axle inspection, repair, storage and retrieval.

Circle 77 on reader service card

DOCK LEVELERS. A new 10-page catalog from Rite-Hite Corp. shows the exclusive features of a full line of mechanical dock levelers. Included are fully automatic, semi-automatic and standard models, plus edge of dock and railcar ramps.

Circle 78 on reader service card

TRANSPORT COVERING. Proform, Inc., has made available a new 16-page booklet on "Transport Covering Systems—Techniques and Alternatives."

Circle 79 on reader service card

Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended March 29, which included the Good Friday holiday, totaled 415,745 cars, according to the Association of American Railroads. This was a decrease of 26,455 cars, or 6.0%, compared with the previous week, and a decrease of 113,878 cars, or 21.5%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended March 29 are estimated at 13.8 billion, a decrease of 20.1% below the corresponding week of 1974.

REVENUE FREIGHT CARLOADINGS

Commodity	Mar. 29 week	Mar. 22 week
Grain	19,735	24,790
Farm products	6,147	7,801
Metallic ores	24,161	25,704
Coal	86,008	88,996
Crushed stone, gravel & sand	19,842	20,803
Nonmetallic minerals	13,227	13,717
Grain mill products	17,957	19,640
Food and kindred products	19,781	21,204
Primary forest products	16,680	16,476
Lumber & wood products (except furniture)	11,947	11,581
Pulp, paper & allied products	18,539	18,416
Chemicals & allied products	24,973	26,174
Petroleum products	6,223	6,897
Stone, clay & glass products	15,729	16,356
Coke	7,320	7,905
Metals & products	22,382	23,697
Motor vehicles & equipment	17,867	19,240
Waste & scrap materials	13,319	14,779
Forwarder & shipper assn. traffic	8,144	8,432
All other carloads	45,333	49,170
LCL traffic	431	422
Total cars loaded	**415,745**	**442,200**
Cumulative total, 13 weeks	1975	1974
	5,667,420	**6,596,863**
Estimated revenue ton-miles (billions) 13 weeks	189.1	216.3

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended March 22 totaled 23,791 cars (28.4% below the corresponding week last year and 0.8% above the preceding week of this year). Trailers or containers totaled 40,643 (down 30.3% from 1974 and up 2.4% from the preceding 1975 week). Cumulative volume for the first 12 weeks of 1975 is 269,974 cars (29.8% below 1974) and 465,137 trailers or containers (down 30.4% from the comparable period of 1974).

IN CANADA

Canadian railway revenue freight loaded in the 7-day period ended March 7 totaled 4.38 million tons (up 1.4% from 1974). Cars loaded decreased 3.0% to 74,750. Cumulative loadings for 1975 were up to 39.4 million tons (up 5.8% from 1974).

● *Denver & Rio Grande Western.*—Capital expenditures this year should be less than the $27 million in 1974, according to the Rio Grande Industries 1974 annual report. About $6 million will go for roadway facilities and $16 million for equipment, including 18 locomotives and 355 100-ton coal hopper cars.

● *Egypt.* A new, $155-million railway modernization program will be financed by a loan of $37 million from the World Bank; $38 million from Western-bloc nations including the U.S., Canada, Britain, France and West Germany; $21.5 million from the Eastern European nations; $54.5 million or more from Saudi Arabia; and $3.5 million from the government of Egypt.

● *Trailer Train.*—A $7.5-million program has been approved for acquiring 200 bulkhead cars for hauling lumber products and two cars for transporting agricultural equipment.

● *Freight-car orders and deliveries.*—The following report has been received from the ARCI and the AAR:

DELIVERED

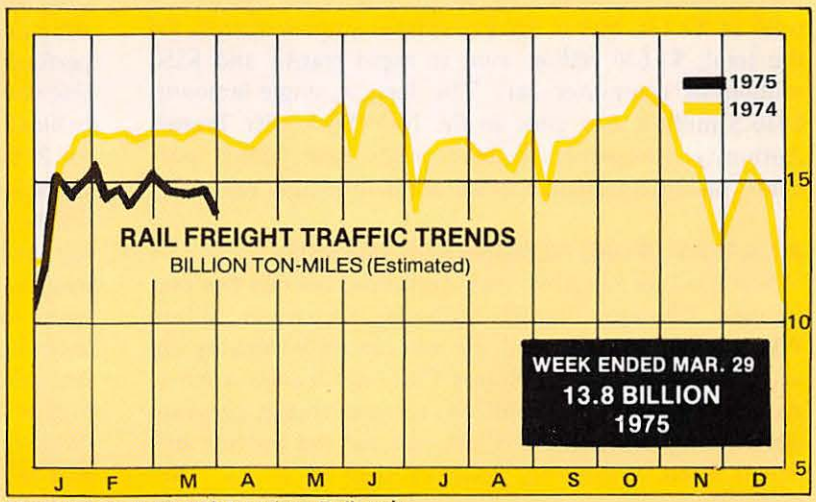
	Feb. '75	Jan. '75	Feb. '74
Built new by carbuilders	5,538	5,736	3,876
Built new in R.R. shops	161	174	127
Built new—total	5,699	5,910	4,003
Rebuilt	172	18	41
TOTAL DELIVERED	**5,871**	**5,928**	**4,044**

ORDERED

To be built new by carbuilders	2,031	3,502	6,231
To be built new in R.R. shops	0	0	500
To be built new—total	2,031	3,502	6,731
To be rebuilt	48	10	0
TOTAL ORDERED	**2,079**	**3,512**	**6,731**

ON ORDER AND UNDELIVERED

	Mar. 1, '75	Feb. 1, '75	Mar. 1, '74
To be built new by carbuilders	72,156	75,910	70,922
To be built new in R.R. shops	10,872	11,033	4,306
To be built new—total	83,028	86,943	75,228
To be rebuilt	777	652	541
TOTAL ON ORDER	**83,805**	**87,595**	**75,769**



Source: Association of American Railroads

Moving People

RONAN CALLS FOR "NEAR-TERM" R&D

Dr. William J. Ronan, chairman of the American Public Transit Association, thinks too many Federal R&D dollars have been dedicated to "exotic and esoteric long-range hardware" and too few to the "near-term" needs of the transit industry. Dr. Ronan, who is also chairman of the Port Authority of New York and New Jersey, told APTA's Rapid Transit Conference in Washington April 1 that the industry needs technology "designed to produce near-term practical results in such areas as transit material flammability and toxicity, rail wheel squeal, concrete ties, noise and vibration abatement, assured energy receptivity, and the development and maintenance of a transit data bank.

HERRINGER: IT'S TIME TO STANDARDIZE

Frank C. Herringer, head of the Urban Mass Transportation Administration, served notice at APTA's Rapid Transit Conference that the Federal government wants to see greater standardization of rail transit equipment, particularly in rolling stock. Said Herringer: "We are working with Baltimore and Atlanta and Washington to achieve standardization there to the degree possible, but I recognize that this emphasis is a bit late for them. However, for those of you who are planning new systems, you can be sure that UMTA will not react favorably to systems designed without consideration being given to the availability of existing equipment. The manufacturers tell us that an economic order quantity for rail cars is well over 200 cars, and we would like to see standardization develop to the point where several properties could join together to buy the same configuration."

UMTA PUTS RAIL SPENDING AT $2.2 BILLION

The Urban Mass Transportation Administration, which for several years has been dispensing capital grants for mass transit improvements, says it has so far awarded a total of $2.186 billion for rail-related improvements. Of the total, $1.636 billion went to rapid transit and $550 million to commuter rail. The largest single amount, $416.5 million, has gone to the New York City Transit Authority. Altogether, Federal funds have helped purchase 3,839 rail transit, commuter rail, and light rail cars.

PIKARSKY: MORE BILLIONS FOR TRANSIT

When it comes to public transportation, nobody has ever accused Chicago Transit Authority Chairman Milton Pikarsky of thinking small. He was certainly thinking big when he addressed the Rotary Club of Chicago April 1. Asserting that the $11.8-billion, six-year transit program which Congress authorized last year did not provide sufficient levels of funding, Pikarsky went on to say: "Actually, the nation needs $6 billion a year in public funding for urban mass transportation. Our transit systems in metropolitan areas need and can profitably utilize that amount if the big jobs that public transportation has to do are accomplished. . .What I should like to suggest is that we invest more of the money that we have been spending on highways on rail and bus transit."

FROM NTSB, NEW SAFETY PROPOSALS

The National Transportation Safety Board has completed its investigation of an Amtrak derailment that occurred at a Santa Fe turnout near Melvern, Kans., last July 5—and out of the inquiry have come recommendations directed at both the Federal Railroad Administration and Amtrak. NTSB asked FRA to (1) work with the railroads to develop "both a turnout which eliminates all possible bolted track joints and a rail connection which eliminates stress contributing to rail failure or joint separation"; (2) set minimum standards for size and quality of track components; and (3) require that all passenger cars have emergency exits and emergency lighting. NTSB recommended that Amtrak (1) install windows which can be removed from the outside; and (2) incorporate "the latest practical crashworthiness features" in all new or renovated rolling stock.

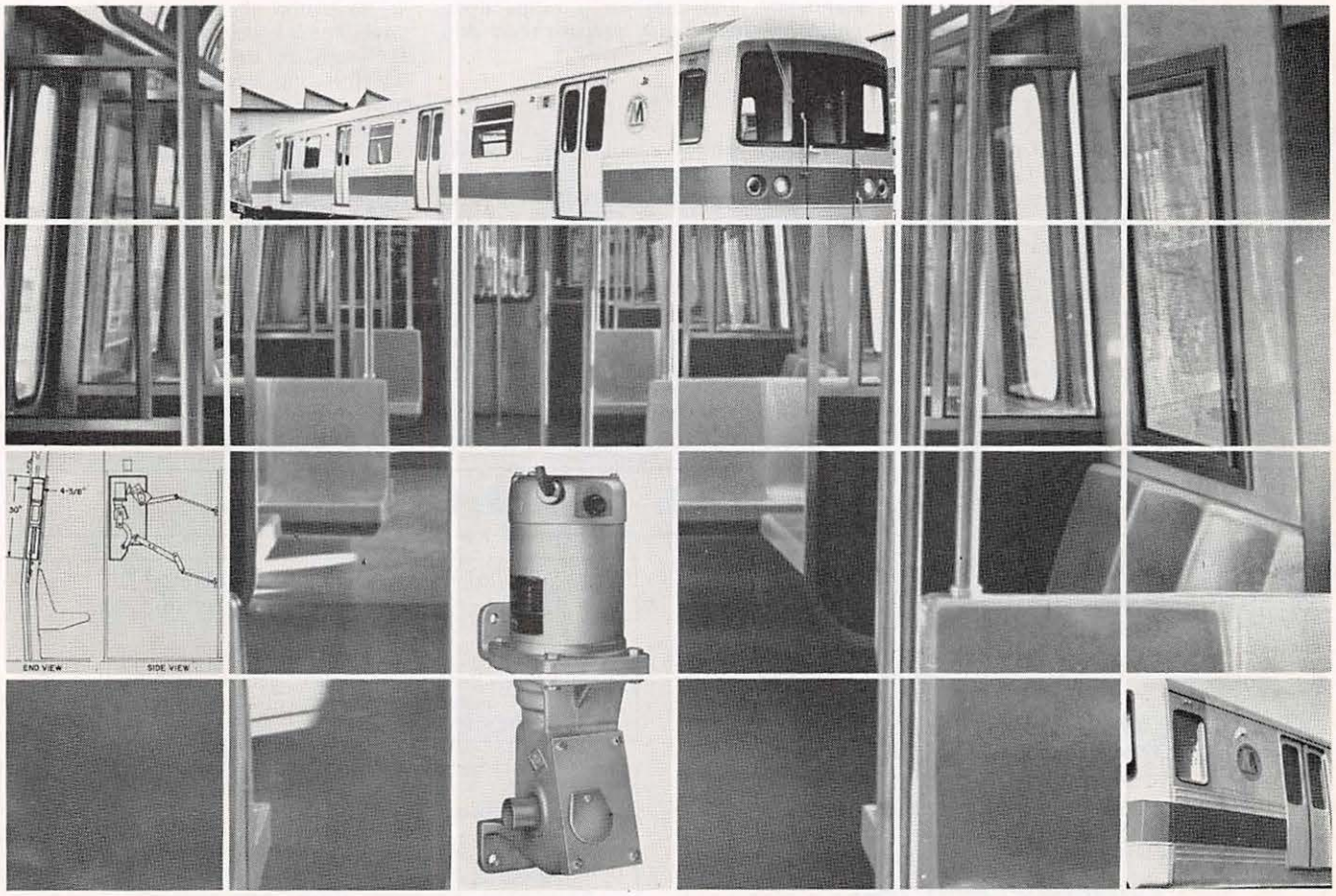
BOEING NAMES CTA-CAR SUB-CONTRACTORS

Boeing Vertol, which is building 200 new cars for the Chicago Transit Authority, has announced the participation of seven sub-contractors: General Electric, propulsion; Abex, friction brakes; Knorr Bremse, track brakes; Lear Siegler, Wegmann, trucks; Krupp, motor alternator; Sorefame, car body; communications, RCA/AEL; automatic train protection, General Railway Signal.

P-S, BUDD GET AMTRAK ORDERS

Amtrak will be spending $245 million for 435 high-performance passenger cars, with Pullman-Standard getting the contract for 235 bi-level cars and Budd scheduled to build 200 single-level units as an add-on to earlier orders for 292 cars. The bi-levels, configured as coaches, diners, sleeping cars, diner-lounges and coach/snack-bar cars, will be used on long-distance runs where clearances permit, and, for the most part, where the number of cars per train is limited. The single-level cars, built as coaches, snack-coaches, club cars, diners and specialty cars, will be used on all Amtrak trains operating on the eastern seaboard and on those trains in the Midwest which run into New York or Washington. Budd is to begin delivery of single-level cars this month, with all 492 cars to be turned over to Amtrak by June 1977; first bi-levels will be coming from P-S in January 1977.

if you have to specify door operators for your cars, go with the operator that "fits in" the new NYCTA cars, go for reliability, go for performance, go for economy, go for the Vapor "Slim-Line" door operator.



Photos Courtesy—New York City Transit Authority

Vapor electric **Slim-Line** door operators "fit in" when NYCTA placed one of the largest orders in rail transit history for new subway cars.

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75 YEARS AGO IN

(April 6 and April 13, 1900)

A record-breaking long distance run was made by a special train on the Atchison Topeka & Santa Fe last week from Los Angeles to Chicago, the total distance of 2,236 miles being covered in 58 hours. The train was engaged by A. R. Peabody, a director of the Carnegie Steel Company, who desired to reach Pittsburg in time to attend an important meeting of the company on Saturday, and his contract with the road was that he should leave Los Angeles on Tuesday morning, March 27, and should be landed in Chicago in time to catch the regular train over the Pennsylvania lines for Pittsburg on Friday morning. The train, which consisted of a special car and a combination car, with a combined weight of 148,900 pounds, left Los Angeles at 10 a.m. on Tuesday, and reached Chicago at 10 p.m. Thursday. This remarkable run was made under ordinary conditions. The track was not especially cleared in order to make fast time but the special had to accommodate itself to the regular schedule as regards meeting points with other trains. Had it been necessary to land Mr. Peabody in Chicago a few hours earlier there is no doubt that it could have been done, as the run from Kansas City to Chicago could have been made in from one and one-half to two hours less time. At the start there was no thought of attempting to make a record-breaking run, but when Albuquerque was reached it became apparent that it was possible to beat the long-distance record.

***

The Northern Pacific has received the first of 10 new tourist sleeping cars which are being built for the North Coast Limited train. The Saint Paul Pioneer Press says of this car: "The car, though designed to accommodate second-class passengers, is much superior to many of the standard sleepers used on the roads of the country. It is 70 feet in length, mounted on 6-wheel trucks and contains 16 sections, or 32 berths. The car is finished in mahogany, and contains a range upon which passengers may prepare their own food if they desire."

***

A street railway company at Norfolk, Va., has begun running separate cars for colored people, in accordance with the requirements of a law recently enacted by the Virginia Legislature.

***

It is the opinion of all our transit experts that we are about to enter upon the development of a subterranean system of transit that will amount virtually to the construction of a new city beneath the old, a city devoted primarily to the business of transportation, but embracing incidentally many uses of the bowels of the earth that are now confined to the spaces above ground. "I believe, " says Mr. Vreeland of the Metropolitan company, "that the city will be tunneled ultimately from end to end. The new tunnel will be the forerunner of many other tunnel roads, and the city eventually will be honeycombed." This is the view of Mr. Parsons, the chief engineer of the Rapid Transit Commission, who includes tunnels under the rivers in his prognostications, as do all other competent authorities.

The simple fact is that we have exhausted the space above ground for transit facilities, and are fairly driven below to find relief. As Mr. Vreeland says, statistics show that railway traffic in the city doubles every ten years. The volume is so large now that virtually all available street space is occupied. There is no main thoroughfare running north and south, which has not been taken for railway purposes. The size of the cars has been increased to the last practicable limit. Then, too, the cars are run so closely together as to take complete possession of the street spaces covered by the tracks. In every street upon which the cable or trolley system has been put in operation the space available for vehicle traffic has been cut down to the portion not devoted to railway purposes; that is to say, has been reduced from a quarter to a third, according to the width of the street. The cars move so rapidly and continuously that vehicles do not venture upon the tracks at all.-N.Y. Commercial Advertiser.

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Viewpoint

What DOT says; what DOT does

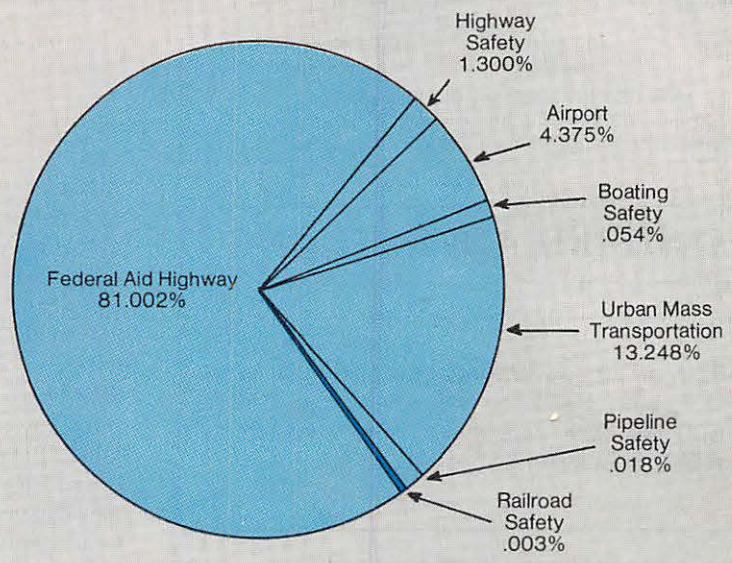
The U.S. Department of Transportation's "1974 Year-End Report," which has just been made available to the press, contains the following ringing tribute to the railroads:

"As our needs for transportation grow, as they surely will, we are going to need the carrying capacities, the energy efficiencies, and the long-haul economics the railroads provide. I am confident that once we lift the burdens of regulatory drag, inadequate returns, and operational inertia, the danger of future rail bankruptcies will be lessened and the prospects for better service improved. Hopefully, we have learned from the miseries of the Penn Central problem the high risks—and high costs—of allowing our railroads to run downhill. By taking preventive action now, I believe we can avoid these risks and costs elsewhere."

Anyone hearing that statement, uttered early in 1974, by then-Secretary Claude S. Brinegar, could be forgiven for thinking that DOT was turning over a new leaf. But what DOT says is one thing; what DOT does is, alas, another.

What DOT did in the months between Mr. Brinegar's January speech and the closing-of-the-books in December is summed up in the Department's own pie-chart, which is reproduced below as it appears on page 27 of the "Year-End Report":

DOT AWARDS BY GRANT PROGRAM
FISCAL YEAR 1974
(DOLLARS IN THOUSANDS)



Airport Planning/Development	$287,302
Boating Safety	3,509
Federal Aid Highway	5,318,810
Gas Pipeline safety	1,175
Highway Traffic Safety	85,386
Railroad Safety	211
Urban Mass Transportation	869,873
DOT Total Grant Awards	**$6,566,266**

When the railroads, in one of their periodic seizures of rage and despair, add up and publish such damning evidence of the DOT's lopsided dispensation of taxpayer dollars, they are accused of playing statistical games. Perhaps the Department's own documentation will carry more credibility with the lawmakers who can correct this shameful imbalance.

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55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81
82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117
118	119	120	121	122	123	124	125	126
127	128	129	130	131	132	133	134	135

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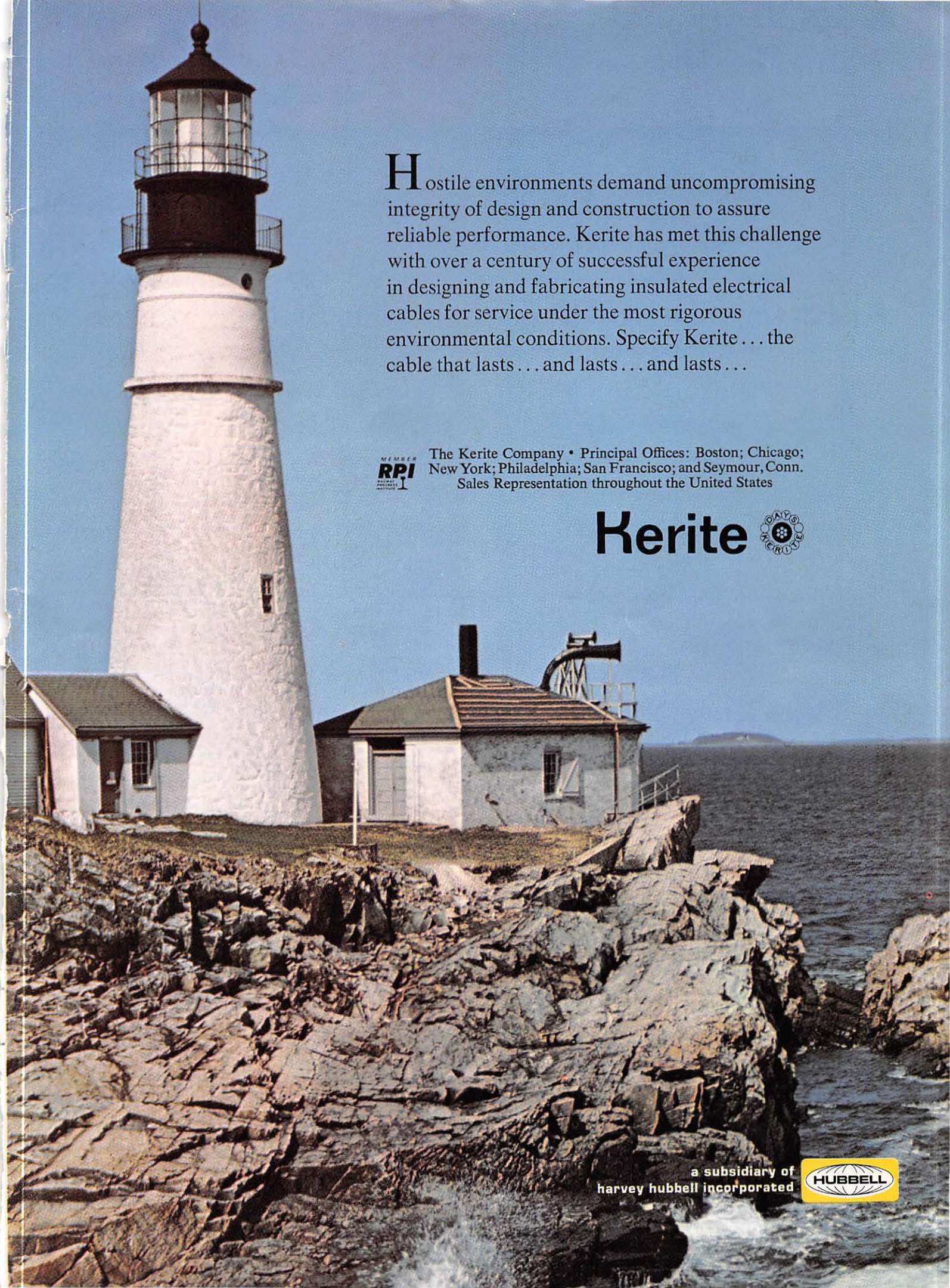

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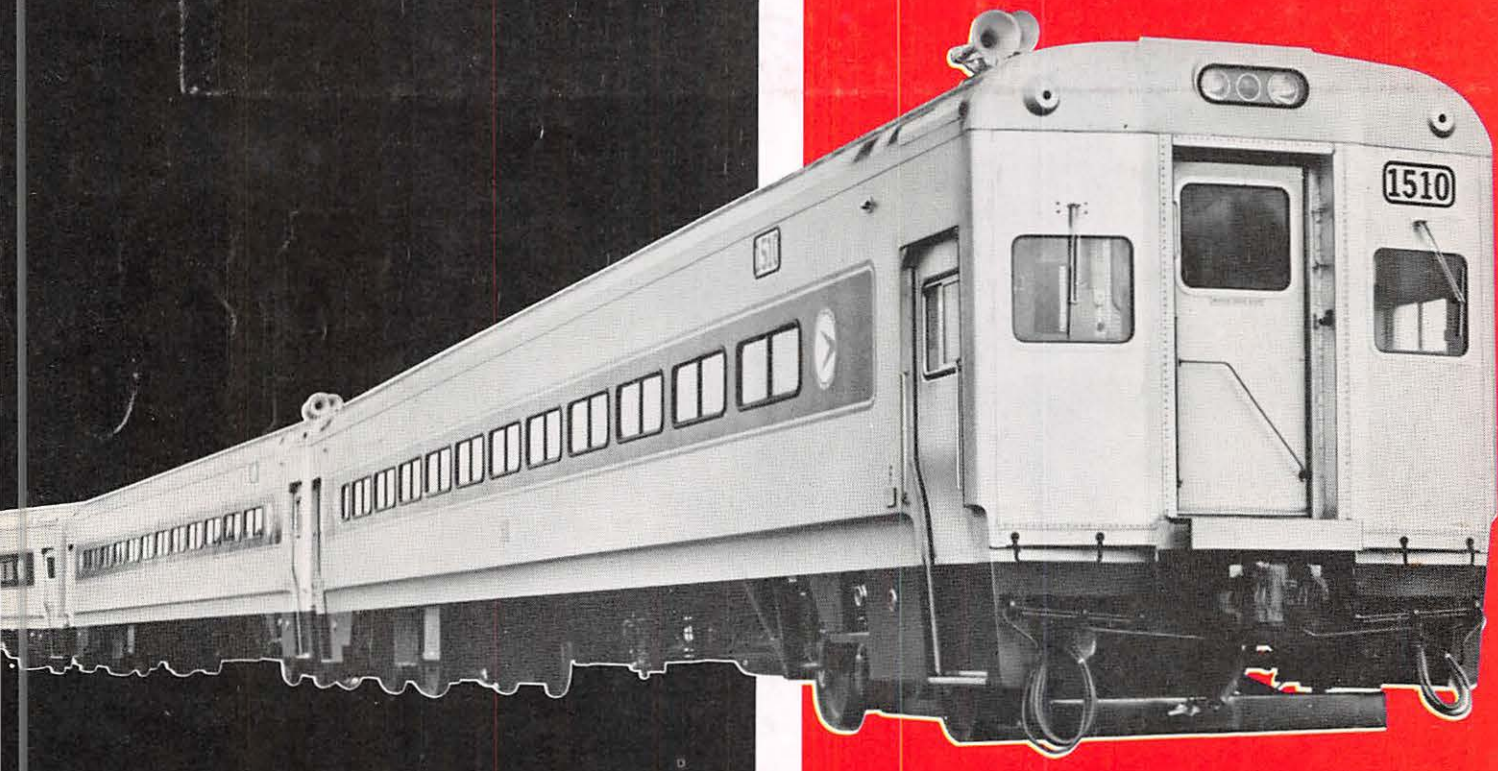

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